

Search strategies

10/535,603

8/29/2006

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CASREACT  
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TERMINAL (ENTER 1, 2, 3, OR ?):2

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NEWS 4 APR 04 STN AnaVist \$500 visualization usage credit offered  
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NEWS 6 MAY 11 KOREAPAT updates resume  
NEWS 7 MAY 19 Derwent World Patents Index to be reloaded and enhanced  
NEWS 8 MAY 30 IPC 8 Rolled-up Core codes added to CA/CAPLUS and  
USPATFULL/USPAT2  
NEWS 9 MAY 30 The F-Term thesaurus is now available in CA/CAPLUS  
NEWS 10 JUN 02 The first reclassification of IPC codes now complete in  
INPADOC  
NEWS 11 JUN 26 TULSA/TULSA2 reloaded and enhanced with new search and  
and display fields  
NEWS 12 JUN 28 Price changes in full-text patent databases EPFULL and PCTFULL  
NEWS 13 JUL 11 CHEMSAFE reloaded and enhanced  
NEWS 14 JUL 14 FSTA enhanced with Japanese patents  
NEWS 15 JUL 19 Coverage of Research Disclosure reinstated in DWPI  
NEWS 16 AUG 09 INSPEC enhanced with 1898-1968 archive  
NEWS 17 AUG 28 ADISCTI Reloaded and Enhanced  
  
NEWS EXPRESS JUNE 30 CURRENT WINDOWS VERSION IS V8.01b, CURRENT  
MACINTOSH VERSION IS V6.0c(ENG) AND V6.0Jc(JP),  
AND CURRENT DISCOVER FILE IS DATED 26 JUNE 2006.  
  
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Enter NEWS followed by the item number or name to see news on that  
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FILE 'HOME' ENTERED AT 15:08:49 ON 29 AUG 2006

=> file casreact

COST IN U.S. DOLLARS

SINCE FILE	TOTAL
ENTRY	SESSION
0.21	0.21

FULL ESTIMATED COST

FILE 'CASREACT' ENTERED AT 15:09:02 ON 29 AUG 2006

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FILE CONTENT:1840 - 27 Aug 2006 VOL 145 ISS 9

New CAS Information Use Policies, enter HELP USAGETERMS for details.

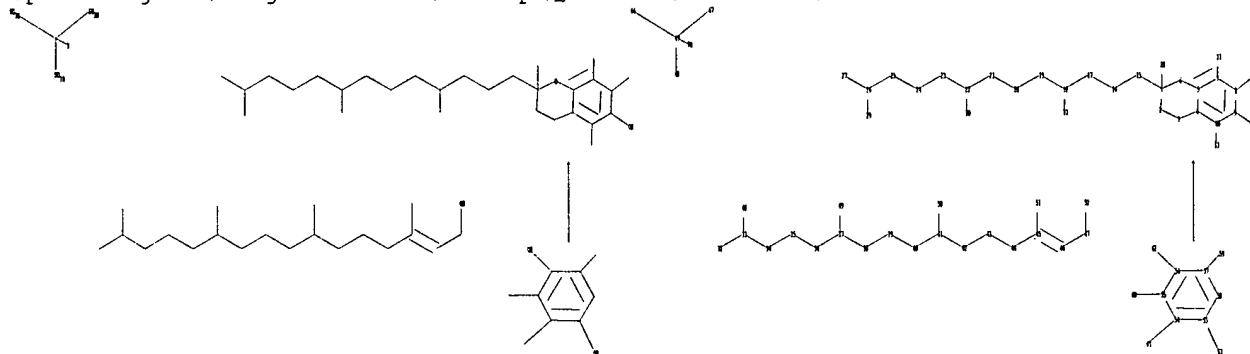
```
*****
*
*   CASREACT now has more than 10 million reactions   *
*
*****
```

Some CASREACT records are derived from the ZIC/VINITI database (1974-1991) provided by InfoChem, INPI data prior to 1986, and Biotransformations database compiled under the direction of Professor Dr. Klaus Kieslich.

This file contains CAS Registry Numbers for easy and accurate substance identification.

=>

Uploading C:\Program Files\Stnexp\Queries\10535603\10535606narrow.str



chain nodes :

11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52
59	60	61	62	63	66	67	68	69	70											

ring nodes :

1	2	3	4	5	6	7	8	9	10	53	54	55	56	57	58
---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----

chain bonds :

1-15	1-28	7-11	8-12	9-14	10-13	15-16	16-17	17-18	18-19	18-31	19-20
20-21	21-22	22-23	22-30	23-24	24-25	25-26	26-27	26-29	32-33	33-34	33-48
34-35	35-36	36-37	37-38	37-49	38-39	39-40	40-41	41-42	41-50	42-43	43-44
44-45	45-46	45-51	46-47	47-52	53-63	54-61	55-60	56-62	57-59	66-69	67-69
68-69	69-70										

ring bonds :  
 1-6 1-2 2-3 3-4 4-5 4-10 5-6 5-7 7-8 8-9 9-10 53-54 53-58 54-55 55-56  
 56-57 57-58  
 exact/norm bonds :  
 1-6 1-2 2-3 3-4 5-6 9-14 47-52 53-63 56-62  
 exact bonds :  
 1-15 1-28 7-11 8-12 10-13 15-16 16-17 17-18 18-19 18-31 19-20 20-21  
 21-22 22-23 22-30 23-24 24-25 25-26 26-27 26-29 32-33 33-34 33-48 34-35  
 35-36 36-37 37-38 37-49 38-39 39-40 40-41 41-42 41-50 42-43 43-44 44-45  
 45-46 45-51 46-47 54-61 55-60 57-59 66-69 67-69 68-69 69-70  
 normalized bonds :  
 4-5 4-10 5-7 7-8 8-9 9-10 53-54 53-58 54-55 55-56 56-57 57-58

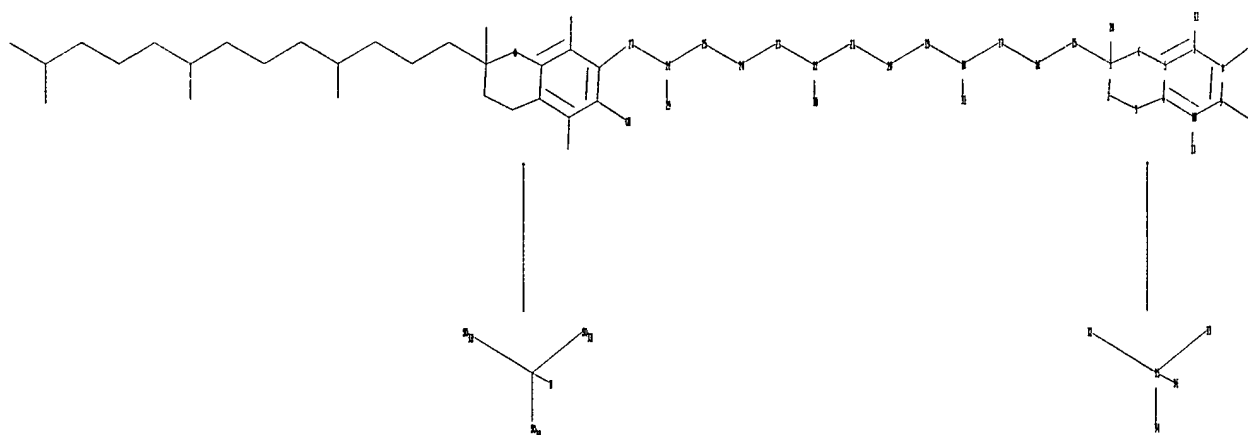
Match level :  
 1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:Atom 8:Atom 9:Atom 10:Atom  
 11:CLASS 12:CLASS 13:CLASS 14:CLASS 15:CLASS 16:CLASS 17:CLASS 18:CLASS  
 19:CLASS 20:CLASS 21:CLASS 22:CLASS 23:CLASS 24:CLASS 25:CLASS 26:CLASS  
 27:CLASS 28:CLASS 29:CLASS 30:CLASS 31:CLASS 32:CLASS 33:CLASS 34:CLASS  
 35:CLASS 36:CLASS 37:CLASS 38:CLASS 39:CLASS 40:CLASS 41:CLASS 42:CLASS  
 43:CLASS 44:CLASS 45:CLASS 46:CLASS 47:CLASS 48:CLASS 49:CLASS 50:CLASS  
 51:CLASS 52:CLASS 53:Atom 54:Atom 55:Atom 56:Atom 57:Atom 58:Atom 59:CLASS  
 60:CLASS 61:CLASS 62:CLASS 63:CLASS 66:CLASS 67:CLASS 68:CLASS 69:CLASS  
 70:CLASS  
 fragments assigned product role:  
 containing 1  
 fragments assigned reactant/reagent role:  
 containing 32  
 containing 53  
 containing 66  
 node mappings:  
 9:56

L1 STRUCTURE UPLOADED

=> s l1 ful  
 FULL SEARCH INITIATED 15:10:13 FILE 'CASREACT'  
 SCREENING COMPLETE - 0 REACTIONS TO VERIFY FROM 0 DOCUMENTS  
 100.0% DONE 0 VERIFIED 0 HIT RXNS 0 DOCS  
 SEARCH TIME: 00.00.01

L2 0 SEA SSS FUL L1 ( 0 REACTIONS)

=>  
 Uploading C:\Program Files\Stnexp\Queries\10535603\10535606narrow1.str



chain nodes :  
 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31  
 32 33 34 35 36  
 ring nodes :  
 1 2 3 4 5 6 7 8 9 10  
 chain bonds :  
 1-15 1-28 7-11 8-12 9-14 10-13 15-16 16-17 17-18 18-19 18-31 19-20  
 20-21 21-22 22-23 22-30 23-24 24-25 25-26 26-27 26-29 32-35 33-35 34-35  
 35-36  
 ring bonds :  
 1-6 1-2 2-3 3-4 4-5 4-10 5-6 5-7 7-8 8-9 9-10  
 exact/norm bonds :  
 1-6 1-2 2-3 3-4 5-6 9-14  
 exact bonds :  
 1-15 1-28 7-11 8-12 10-13 15-16 16-17 17-18 18-19 18-31 19-20 20-21  
 21-22 22-23 22-30 23-24 24-25 25-26 26-27 26-29 32-35 33-35 34-35 35-36  
 normalized bonds :  
 4-5 4-10 5-7 7-8 8-9 9-10

Match level :  
 1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:Atom 8:Atom 9:Atom 10:Atom  
 11:CLASS 12:CLASS 13:CLASS 14:CLASS 15:CLASS 16:CLASS 17:CLASS 18:CLASS  
 19:CLASS 20:CLASS 21:CLASS 22:CLASS 23:CLASS 24:CLASS 25:CLASS 26:CLASS  
 27:CLASS 28:CLASS 29:CLASS 30:CLASS 31:CLASS 32:CLASS 33:CLASS 34:CLASS  
 35:CLASS 36:CLASS  
 fragments assigned product role:  
 containing 1  
 fragments assigned reactant/reagent role:  
 containing 32

L3            STRUCTURE UPLOADED

=> s 13 ful

FULL SEARCH INITIATED 15:11:50 FILE 'CASREACT'

SCREENING COMPLETE -            0 REACTIONS TO VERIFY FROM            0 DOCUMENTS

100.0% DONE            0 VERIFIED            0 HIT RXNS            0 DOCS

SEARCH TIME: 00.00.01

L4            0 SEA SSS FUL L3 (            0 REACTIONS)

=> file reg

COST IN U.S. DOLLARS

SINCE FILE

TOTAL

ENTRY

SESSION

FULL ESTIMATED COST

223.36

223.57

FILE 'REGISTRY' ENTERED AT 15:14:29 ON 29 AUG 2006

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STRUCTURE FILE UPDATES:    28 AUG 2006    HIGHEST RN 904961-01-9

DICTIONARY FILE UPDATES:   28 AUG 2006    HIGHEST RN 904961-01-9

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TSCA INFORMATION NOW CURRENT THROUGH June 30, 2006

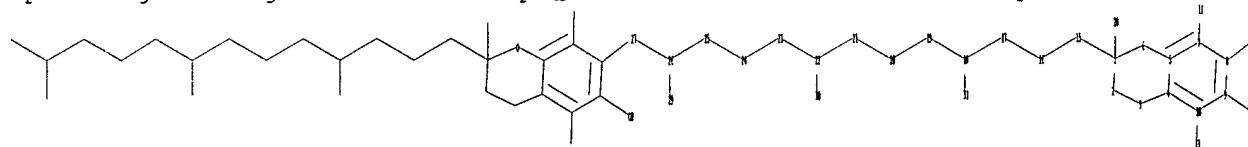
Please note that search-term pricing does apply when  
conducting SmartSELECT searches.

REGISTRY includes numerically searchable data for experimental and  
predicted properties as well as tags indicating availability of  
experimental property data in the original document. For information  
on property searching in REGISTRY, refer to:

<http://www.cas.org/ONLINE/UG/regprops.html>

=>

Uploading C:\Program Files\Stnexp\Queries\10535603\10535606tocopherol.str



chain nodes :

11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31

ring nodes :

1 2 3 4 5 6 7 8 9 10

chain bonds :

1-15 1-28 7-11 8-12 9-14 10-13 15-16 16-17 17-18 18-19 18-31 19-20

20-21 21-22 22-23 22-30 23-24 24-25 25-26 26-27 26-29

ring bonds :

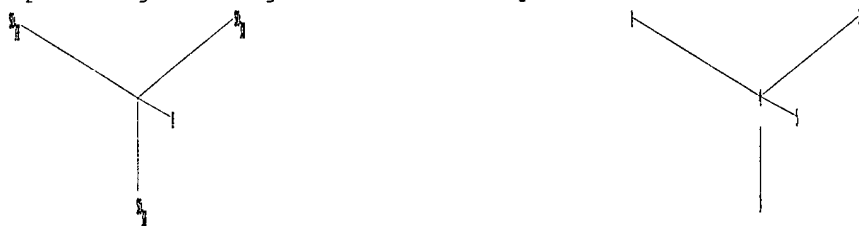
1-6 1-2 2-3 3-4 4-5 4-10 5-6 5-7 7-8 8-9 9-10

exact/norm bonds :  
 1-6 1-2 2-3 3-4 5-6 9-14  
 exact bonds :  
 1-15 1-28 7-11 8-12 10-13 15-16 16-17 17-18 18-19 18-31 19-20 20-21  
 21-22 22-23 22-30 23-24 24-25 25-26 26-27 26-29  
 normalized bonds :  
 4-5 4-10 5-7 7-8 8-9 9-10

Match level :  
 1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:Atom 8:Atom 9:Atom 10:Atom  
 11:CLASS 12:CLASS 13:CLASS 14:CLASS 15:CLASS 16:CLASS 17:CLASS 18:CLASS  
 19:CLASS 20:CLASS 21:CLASS 22:CLASS 23:CLASS 24:CLASS 25:CLASS 26:CLASS  
 27:CLASS 28:CLASS 29:CLASS 30:CLASS 31:CLASS

L5 STRUCTURE UPLOADED

=>  
 Uploading C:\Program Files\Stnexp\Queries\10535603\10535606methanetrissulphonate.str.



chain nodes :  
 1 2 3 4 5  
 chain bonds :  
 1-4 2-4 3-4 4-5  
 exact bonds :  
 1-4 2-4 3-4 4-5

Match level :  
 1:CLASS 2:CLASS 3:CLASS 4:CLASS 5:CLASS

L6 STRUCTURE UPLOADED

=> file caplus  
 COST IN U.S. DOLLARS  
 FULL ESTIMATED COST

SINCE FILE	TOTAL
ENTRY	SESSION
0.44	224.01

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FILE COVERS 1907 - 29 Aug 2006 VOL 145 ISS 10  
FILE LAST UPDATED: 28 Aug 2006 (20060828/ED)

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=> s 15 and 16

REGISTRY INITIATED

Substance data SEARCH and crossover from CAS REGISTRY in progress...  
Use DISPLAY HITSTR (or FHITSTR) to directly view retrieved structures.

SAMPLE SEARCH INITIATED 15:15:20 FILE 'REGISTRY'  
SAMPLE SCREEN SEARCH COMPLETED - 147 TO ITERATE

100.0% PROCESSED 147 ITERATIONS 25 ANSWERS  
SEARCH TIME: 00.00.01

FULL FILE PROJECTIONS: ONLINE \*\*COMPLETE\*\*  
BATCH \*\*COMPLETE\*\*  
PROJECTED ITERATIONS: 2213 TO 3667  
PROJECTED ANSWERS: 200 TO 800

L7 25 SEA SSS SAM L5

L8 65 L7

REGISTRY INITIATED

Substance data SEARCH and crossover from CAS REGISTRY in progress...  
Use DISPLAY HITSTR (or FHITSTR) to directly view retrieved structures.

SAMPLE SEARCH INITIATED 15:15:21 FILE 'REGISTRY'  
SAMPLE SCREEN SEARCH COMPLETED - 6 TO ITERATE

100.0% PROCESSED 6 ITERATIONS 0 ANSWERS  
SEARCH TIME: 00.00.01

FULL FILE PROJECTIONS: ONLINE \*\*COMPLETE\*\*  
BATCH \*\*COMPLETE\*\*  
PROJECTED ITERATIONS: 6 TO 266  
PROJECTED ANSWERS: 0 TO 0

L9 0 SEA SSS SAM L6

L10 0 L9

L11            0 L8 AND L10

=> s 15

REGISTRY INITIATED

Substance data SEARCH and crossover from CAS REGISTRY in progress...

Use DISPLAY HITSTR (or FHITSTR) to directly view retrieved structures.

SAMPLE SEARCH INITIATED 15:16:54 FILE 'REGISTRY'  
SAMPLE SCREEN SEARCH COMPLETED -        147 TO ITERATE

100.0% PROCESSED        147 ITERATIONS                    25 ANSWERS  
SEARCH TIME: 00.00.03

FULL FILE PROJECTIONS:   ONLINE   \*\*COMPLETE\*\*  
                             BATCH   \*\*COMPLETE\*\*  
PROJECTED ITERATIONS:        2213 TO        3667  
PROJECTED ANSWERS:            200 TO        800

L12            25 SEA SSS SAM L5

L13            65 L12

=> s 16

REGISTRY INITIATED

Substance data SEARCH and crossover from CAS REGISTRY in progress...

Use DISPLAY HITSTR (or FHITSTR) to directly view retrieved structures.

SAMPLE SEARCH INITIATED 15:17:11 FILE 'REGISTRY'  
SAMPLE SCREEN SEARCH COMPLETED -        6 TO ITERATE

100.0% PROCESSED        6 ITERATIONS                    0 ANSWERS  
SEARCH TIME: 00.00.01

FULL FILE PROJECTIONS:   ONLINE   \*\*COMPLETE\*\*  
                             BATCH   \*\*COMPLETE\*\*  
PROJECTED ITERATIONS:        6 TO        266  
PROJECTED ANSWERS:            0 TO        0

L14            0 SEA SSS SAM L6

L15            0 L14

=> file reg

COST IN U.S. DOLLARS

SINCE FILE	TOTAL
ENTRY	SESSION
1.84	230.37

FULL ESTIMATED COST

FILE 'REGISTRY' ENTERED AT 15:19:17 ON 29 AUG 2006  
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DICTIONARY FILE UPDATES: 28 AUG 2006 HIGHEST RN 904961-01-9

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Please note that search-term pricing does apply when  
conducting SmartSELECT searches.

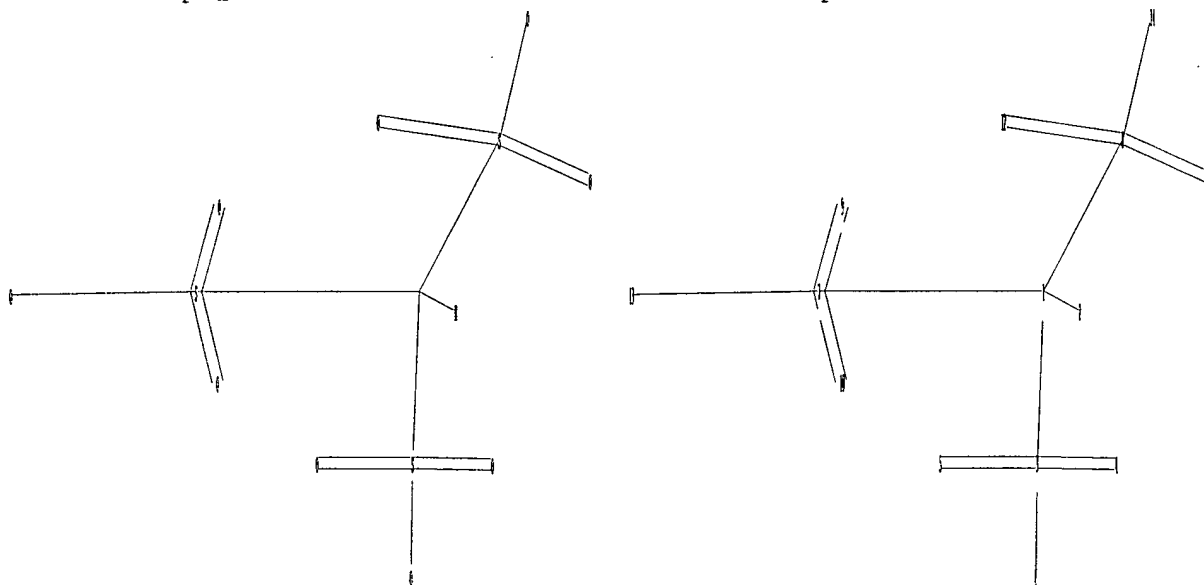
REGISTRY includes numerically searchable data for experimental and  
predicted properties as well as tags indicating availability of  
experimental property data in the original document. For information  
on property searching in REGISTRY, refer to:

<http://www.cas.org/ONLINE/UG/regprops.html>

=>

Uploading C:\Program

Files\Stnexp\Queries\10535603\10535606methanetrissulphonatewithoutH.str



chain nodes :

1 2 3 4 5 6 7 8 9 10 11 12 13 14

chain bonds :

1-2 1-3 1-7 1-8 3-4 3-5 3-6 7-9 7-10 7-13 8-11 8-12 8-14

exact/norm bonds :

1-3 1-7 1-8 3-4 3-5 3-6 7-9 7-10 7-13 8-11 8-12 8-14

exact bonds :

1-2

Match level :

1:CLASS 2:CLASS 3:CLASS 4:CLASS 5:CLASS 6:CLASS 7:CLASS 8:CLASS 9:CLASS

10:CLASS 11:CLASS 12:CLASS 13:CLASS 14:CLASS

L16 STRUCTURE UPLOADED

=> s l16

SAMPLE SEARCH INITIATED 15:19:31 FILE 'REGISTRY'

SAMPLE SCREEN SEARCH COMPLETED - 1 TO ITERATE

100.0% PROCESSED 1 ITERATIONS 0 ANSWERS  
SEARCH TIME: 00.00.01

FULL FILE PROJECTIONS: ONLINE \*\*COMPLETE\*\*  
BATCH \*\*COMPLETE\*\*  
PROJECTED ITERATIONS: 1 TO 80  
PROJECTED ANSWERS: 0 TO 0

L17 0 SEA SSS SAM L16

=> s l16 ful  
FULL SEARCH INITIATED 15:19:58 FILE 'REGISTRY'  
FULL SCREEN SEARCH COMPLETED - 53 TO ITERATE

100.0% PROCESSED 53 ITERATIONS 15 ANSWERS  
SEARCH TIME: 00.00.01

L18 15 SEA SSS FUL L16

=> d ibib hitstr 1-15  
'IBIB' IS NOT A VALID FORMAT FOR FILE 'REGISTRY'  
'HITSTR' IS NOT A VALID FORMAT FOR FILE 'REGISTRY'

The following are valid formats:

Substance information can be displayed by requesting individual fields or predefined formats. The predefined substance formats are: (RN = CAS Registry Number)

REG - RN  
SAM - Index Name, MF, and structure - no RN  
FIDE - All substance data, except sequence data  
IDE - FIDE, but only 50 names  
SQIDE - IDE, plus sequence data  
SQIDE3 - Same as SQIDE, but 3-letter amino acid codes are used  
SQD - Protein sequence data, includes RN  
SQD3 - Same as SQD, but 3-letter amino acid codes are used  
SQN - Protein sequence name information, includes RN

CALC - Table of calculated properties  
EPROP - Table of experimental properties  
PROP - EPROP and CALC

Any CA File format may be combined with any substance format to obtain CA references citing the substance. The substance formats must be cited first. The CA File predefined formats are:

ABS -- Abstract  
APPS -- Application and Priority Information  
BIB -- CA Accession Number, plus Bibliographic Data  
CAN -- CA Accession Number  
CBIB -- CA Accession Number, plus Bibliographic Data (compressed)  
IND -- Index Data  
IPC -- International Patent Classification  
PATS -- PI, SO  
STD -- BIB, IPC, and NCL  
  
IABS -- ABS, indented, with text labels  
IBIB -- BIB, indented, with text labels  
ISTD -- STD format, indented

OBIB ----- AN, plus Bibliographic Data (original)  
OIBIB ----- OBIB, indented with text labels

SBIB ----- BIB, no citations  
SIBIB ----- IBIB, no citations

The ALL format gives FIDE BIB ABS IND RE, plus sequence data when it is available.

The MAX format is the same as ALL.

The IALL format is the same as ALL with BIB ABS and IND indented, with text labels.

For additional information, please consult the following help messages:

HELP DFIELDS -- To see a complete list of individual display fields.  
HELP FORMATS -- To see detailed descriptions of the predefined formats.  
ENTER DISPLAY FORMAT (IDE):end

=> s l16 ful  
FULL SEARCH INITIATED 15:20:22 FILE 'REGISTRY'  
FULL SCREEN SEARCH COMPLETED - 53 TO ITERATE

100.0% PROCESSED 53 ITERATIONS 15 ANSWERS  
SEARCH TIME: 00.00.01

L19 15 SEA SSS FUL L16

COST IN U.S. DOLLARS	SINCE FILE ENTRY	TOTAL SESSION
FULL ESTIMATED COST	333.88	564.25

FILE 'CAPLUS' ENTERED AT 15:20:25 ON 29 AUG 2006  
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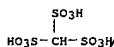
=> s l19  
L20 37 L19

=> d ibib hitstr abs 1-37

L20 ANSWER 1 OF 37 CAPLUS COPYRIGHT 2006 ACS on STN  
ACCESSION NUMBER: 2005:426357 CAPLUS  
DOCUMENT NUMBER: 142:463900  
TITLE: Acylation process for the preparation of  
2,3,5-trimethylhydroquinone diacylates in the  
presence  
of methanetrissulfonic acid catalyst  
INVENTOR(S): Aquino, Fabrice; Bonrath, Werner; Pace, Francesco  
PATENT ASSIGNEE(S): DSM IP Assets B.V., Neth.  
SOURCE: PCT Int. Appl., 10 pp.  
CODEN: PIXXD2  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2005044775	A1	20050519	WO 2004-EP12058	20041026
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GR, GU, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MY, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
EP 1680392	A1	20060719	EP 2004-790843	20041026
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, FI, RO, CY, TR, BG, CZ, EE, HU, PL, SK				
PRIORITY APPLN. INFO.: EP 2003-25513 A 20031107				
WO 2004-EP12058 W 20041026				

OTHER SOURCE(S): CASREACT 142:463900  
IT 54322-33-7, Methanetrissulfonic acid  
RL: CAT (Catalyst use); USES (Uses)  
(acylation process for preparation of 2,3,5-trimethylhydroquinone diacylates in presence of methanetrissulfonic acid catalyst)  
RN 54322-33-7 CAPLUS  
CN Methanetrissulfonic acid (7CI, 9CI) (CA INDEX NAME)



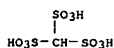
AB 2,3,5-trimethyl-1,4-hydroquinone diacylates (e.g., 2,3,5-trimethyl-1,4-benzquinone diacetate), useful as intermediates in the preparation of α-tocopherol (no data), are obtained in high yield and selectivity by reacting 3,5,5-trimethyl-1,4-benzquinone with an acylating agent (e.g., acetic anhydride) in the presence of catalytic quantities of methanetrissulfonic acid.

REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE  
FORMAT

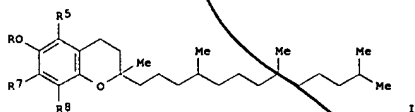
L20 ANSWER 2 OF 37 CAPLUS COPYRIGHT 2006 ACS on STN  
ACCESSION NUMBER: 2004:965239 CAPLUS  
DOCUMENT NUMBER: 141:395687  
TITLE: Process for the manufacture of tocyl and tocopheryl acylates  
INVENTOR(S): Bonrath, Werner; Haas, Alois; Hoppmann, Simone;  
Netscher, Thomas; Pauling, Horst  
PATENT ASSIGNEE(S): DSM IP Assets B.V., Neth.  
SOURCE: PCT Int. Appl., 15 pp.  
CODEN: PIXXD2  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004096790	A1	20041111	WO 2004-EP4144	20040419
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GR, GU, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MY, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
PRIORITY APPLN. INFO.: EP 2003-9522 A 20030428				

OTHER SOURCE(S): CASREACT 141:395687; MARPAT 141:395687  
IT 54322-33-7, Methanetrissulfonic acid  
RL: CAT (Catalyst use); USES (Uses)  
(process for manufacture of tocyl and tocopherol acylates using perfluoroalkylsulfonate catalysts)  
RN 54322-33-7 CAPLUS  
CH Methanetrissulfonic acid (7CI, 9CI) (CA INDEX NAME)



GI



AB A process for the manufacture of tocyl acylate I [R = acyl; R1 = R2 = R3 = H]

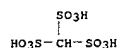
L20 ANSWER 1 OF 37 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)

L20 ANSWER 2 OF 37 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)  
or a tocopheryl acylate I [R = acyl; R5 = R7 = R8 = Me, R5 = H, R7 = R8 = Me, etc.] comprised reacting a corresponding tocyl or tocopherol with an acylating agent in the presence of a catalyst of the general formula HCR1R2R3 [wherein R1, R2 and R3 each signify the sulfo group, or R1, R2 and R3 each signify a perfluoroalkylsulfonyl group whereby at least two of R1, R2 and R3 are identical such perfluoroalkyl-sulfonyl groups, or R1 signifies the pentafluorophenyl-sulfonyl group and R2 and R3 each signify an identical perfluoroalkylsulfonyl group]. The main com. form of vitamin E, being (all-rac)-α-tocopheryl acetate I [R = acetyl; R5 = R7 = R8 = Me], can be manuf. by acylation of (all-rac)-α-tocopherol according to this process.  
REFERENCE COUNT: 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE  
FORMAT

L20 ANSWER 3 OF 37 CAPLUS COPYRIGHT 2006 ACS ON STN  
ACCESSION NUMBER: 2004:823008 CAPLUS  
DOCUMENT NUMBER: 141:334863  
TITLE: Crosslinked polyoxyalkylene-polysiloxanes for use as nonaqueous salt-type electrolytes for lithium secondary batteries  
INVENTOR(S): Barrandon, Georges; George, Catherine; Vergelati, Carol; Giraud, Yves  
PATENT ASSIGNEE(S): Rhodia Chimie, Fr.  
SOURCE: Fr. Demande, 25 pp.  
CODEN: FRXXBL  
DOCUMENT TYPE: Patent  
LANGUAGE: French  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
FR 2853321	A1	20041008	FR 2003-4153	20030403
FR 2853321	B1	20050506		
WO 2004090037	A1	20041021	WO 2004-FR708	20040323
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MY, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
EP 1608705	A1	20051228	EP 2004-742318	20040323
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, PL, SK				
CN 1788054	A	20060614	CN 2004-80013072	20040323
PRIORITY APPLN. INFO.:			FR 2003-4153	A 20030403
			WO 2004-FR708	W 20040323

OTHER SOURCE(S): MARPAT 141:334863  
IT 54322-33-7DP, Methanetrissulfonic acid, derivs., salts  
RL: DEV (Device component use); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (battery electrolytes containing; crosslinked polyoxyalkylene-polysiloxanes for use as nonaqueous salt-type electrolytes for lithium secondary batteries)  
RN 54322-33-7 CAPLUS  
CN Methanetrissulfonic acid (7CI, 9CI) (CA INDEX NAME)

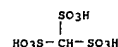


AB Crosslinked polymeric electrolytes for lithium secondary batteries consist of: (1) a first poly(hydrogen organic siloxane) with  $\geq 2$  Si-H bonds per mol., (2) a second polysiloxane containing  $\geq 2$  Si-OH bonds per mol., (3)

L20 ANSWER 4 OF 37 CAPLUS COPYRIGHT 2006 ACS ON STN  
ACCESSION NUMBER: 2004:823007 CAPLUS  
DOCUMENT NUMBER: 141:334862  
TITLE: Photochemical crosslinked epoxy-polyoxyalkylene-polysiloxanes for use as nonaqueous salt-type electrolytes for lithium secondary batteries  
INVENTOR(S): Gambut, Lucile; Vergelati, Carol; Sanchez, Jean Yves  
PATENT ASSIGNEE(S): Alloin, Fannie  
SOURCE: Rhodia Chimie, Fr.; Rhone Poulenc Chimie  
Fr. Demande, 30 pp.  
CODEN: FRXXBL  
DOCUMENT TYPE: Patent  
LANGUAGE: French  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
FR 2853320	A1	20041008	FR 2003-4150	20030403
FR 2853320	B1	20050506		
WO 2004091033	A2	20041021	WO 2004-FR707	20040323
WO 2004091033	A3	20050714		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MY, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
EP 1609205	A2	20051228	EP 2004-742317	20040323
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, PL, SK				
CN 1784806	A	20060607	CN 2004-80012563	20040323
PRIORITY APPLN. INFO.:			FR 2003-4150	A 20030403
			WO 2004-FR707	W 20040323

OTHER SOURCE(S): MARPAT 141:334862  
IT 54322-33-7DP, Methanetrissulfonic acid, derivs., salts  
RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (battery electrolytes containing; photochem. crosslinked epoxy-polyoxyalkylene-polysiloxanes for use as nonaq. salt-type electrolytes for lithium secondary batteries)  
RN 54322-33-7 CAPLUS  
CN Methanetrissulfonic acid (7CI, 9CI) (CA INDEX NAME)



AB Crosslinked polymeric electrolytes for lithium secondary batteries are prepared from a polyorganosiloxane grafted with polyoxyalkylene and epoxy functions, followed by radiochem. or photochem. (e.g., UV-induced)

L20 ANSWER 3 OF 37 CAPLUS COPYRIGHT 2006 ACS ON STN (Continued)  
a dehydrogenation-condensation catalyst, and (4)  $\geq 1$  salt electrolyte. The polyoxyalkylene ether functions are derived from polyoxyethylene, polyoxypropylene, or their mono-Me ethers. The dehydrogenation-condensation catalysts are typically metal complexes based on Pt, B, Rh, Pd, Sn, or Ir, preferably Karstedt (hydrosilylation) catalysts of formula IrCl(CO)(PPh<sub>3</sub>)<sub>2</sub>. Suitable salt electrolytes include LiClO<sub>4</sub>, LiBF<sub>4</sub>, LiAsF<sub>6</sub>, CF<sub>3</sub>SO<sub>3</sub>Li, LiN(CF<sub>3</sub>SO<sub>2</sub>)<sub>2</sub>, and LiN(C<sub>2</sub>F<sub>5</sub>SO<sub>2</sub>)<sub>2</sub> in a non-aq. electrolyte solvent, as well as other cations (e.g., transition metal cations, selected from Mn, Fe, Co, Ni, Cu, Zn, Ca, and Ag). Anions include ammonium, amidinium, guanidinium cations, halides, ClO<sub>4</sub><sup>-</sup>, SCN<sup>-</sup>, BF<sub>4</sub><sup>-</sup>, NO<sub>3</sub><sup>-</sup>, AsF<sub>6</sub><sup>-</sup>, PF<sub>6</sub><sup>-</sup>, RSO<sub>3</sub><sup>-</sup> (R = stearyl, CF<sub>3</sub>, octyl, dodecylphenyl, and Cl-6-perfluoroalkyl and -perfluoroaryl), (R<sub>5</sub>SO<sub>2</sub>)<sub>2</sub>N<sup>-</sup>, and (R<sub>4</sub>SO<sub>2</sub>)(R<sub>5</sub>SO<sub>2</sub>)(R<sub>6</sub>SO<sub>2</sub>)C<sup>-</sup> (R<sub>4</sub>-6 = Cl-6-perfluoroalkyl and -perfluoroaryl).

REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE

FORMAT

L20 ANSWER 4 OF 37 CAPLUS COPYRIGHT 2006 ACS ON STN (Continued)  
crosslinking in the presence of a photosensitizer. The crosslinked epoxy-polyoxyalkylene-polysiloxanes have the general formula R<sub>1</sub>R<sub>2</sub>YR<sub>3</sub>SiO<sub>4-x-z</sub>/2, in which R<sub>1</sub>-3 are Cl-12-alkyl, C<sub>5</sub>-10-cycloalkyl, C<sub>6</sub>-18-aryl, aralkyl, or -OR<sub>4</sub> (R<sub>4</sub> = H, or Cl-15-alkyl; and x + y + z = 1-3). The product polysiloxanes (typically prepd. from Si-H bond-contg. polysiloxanes by hydrosilylation grafting with allyl-terminated polyoxyalkylenes and epoxides) are then combined with org. salts to form the battery electrolytes. Suitable salt electrolytes include LiClO<sub>4</sub>, LiBF<sub>4</sub>, LiAsF<sub>6</sub>, CF<sub>3</sub>SO<sub>3</sub>Li, LiN(CF<sub>3</sub>SO<sub>2</sub>)<sub>2</sub>, and LiN(C<sub>2</sub>F<sub>5</sub>SO<sub>2</sub>)<sub>2</sub>, other cations (e.g., transition metal cations); ammonium, amidinium, and guanidinium salts; org. sulfonates, imidodisulfonates, methanetrissulfonates, organoboron complex salts, ferricenium salts, and other onium salts (esp. iodonium and sulfonium compds.).

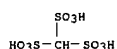
REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE

FORMAT

L20 ANSWER 5 OF 37 CAPLUS COPYRIGHT 2006 ACS ON STN  
 ACCESSION NUMBER: 2004:453200 CAPLUS  
 DOCUMENT NUMBER: 141:23750  
 TITLE: Manufacture of  $\alpha$ -tocopherol from the reaction of trimethylhydroquinone with isophytol or phytol in the presence of methane trisulfonate  
 INVENTOR(S): Bonrath, Werner; Hoppmann, Simone Haas, Alois; Netscher, Thomas; Pauling, Horst  
 PATENT ASSIGNEE(S): DSM IP Assets B.V., Neth.  
 SOURCE: PCT Int. Appl., 13 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

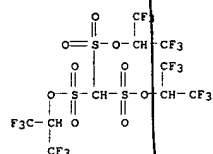
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004046127	A1	20040603	WO 2003-EP10837	20030930
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MY, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SV, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW			
RW:	GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			
AU 2003270295	A1	20040615	AU 2003-270295	20030930
CN 1701065	A	20051123	CN 2003-825314	20030930
US 2006020139	A1	20060126	US 2005-535603	20050519
PRIORITY APPLN. INFO.:			EP 2402-25990	A 20021121
			WO 2003-EP10837	W 20030930

OTHER SOURCE(S): CASREACT 141:23750  
 IT 54322-33-7, Methanetrissulfonic acid  
 RL: CAT (Catalyst use); USES (Uses)  
 (manufacture of  $\alpha$ -tocopherol from the reaction of trimethylhydroquinone with isophytol or phytol in the presence of methane trisulfonate)  
 RN 54322-33-7 CAPLUS  
 CN Methanetrissulfonic acid (7CI, 9CI) (CA INDEX NAME)



AB (all-rac)- $\alpha$ -tocopherol is prepared by the acid-catalyzed reaction of trimethylhydroquinone with isophytol or phytol in the presence of methane trisulfonate as the catalyst in an organic solvent.

L20 ANSWER 6 OF 37 CAPLUS COPYRIGHT 2006 ACS ON STN (Continued)



AB The invention concerns a method for preparing high yields of polyisocyanates containing urethane groups by cyclodimerization of isocyanate functions borne by initial monomer isocyanates. The invention is characterized in that it comprises steps which consist in: (a) providing a reaction medium comprising initial monomer isocyanates, optionally in the presence of a solvent; (b) adding to said reaction mixture a (cyclo)dimerization catalyst comprising a compound of the family of super acids (such as  $(\text{CF}_3\text{SO}_2)_2\text{NH}$ ); (c) heating the reaction medium to a temperature ranging between  $0^\circ\text{C}$  and  $300^\circ\text{C}$ , advantageously between  $20^\circ\text{C}$  and  $200^\circ\text{C}$  until the desired rate of transformation is obtained; (d) optionally, inactivating or eliminating the reaction catalyst; and (e) optionally, eliminating the unreacted monomer.  
 REFERENCE COUNT: 7  
 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE  
 FORMAT

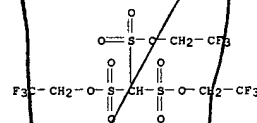
L20 ANSWER 6 OF 37 CAPLUS COPYRIGHT 2006 ACS ON STN  
 ACCESSION NUMBER: 2002:391791 CAPLUS  
 DOCUMENT NUMBER: 136:386879  
 TITLE: Method for catalytic dimerization of isocyanates  
 INVENTOR(S): Bernard, Jean-Marie  
 PATENT ASSIGNEE(S): Rhodia Chimie, Fr.  
 SOURCE: PCT Int. Appl., 42 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: French  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002040567	A1	20020523	WO 2001-FR3648	20011120
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, GR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MY, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM			
FR 2816939	A1	20020524	FR 2000-14966	20001120
FR 2816939	B1	20030829		
AU 2002020807	A1	20020527	AU 2002-20807	20011120
EP 1352006	A1	20031015	EP 2001-996571	20011120
R:	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR			
BR 2001015453	A	20040106	BR 2001-15453	20011120
US 2004014970	A1	20040122	US 2003-432050	20030519
PRIORITY APPLN. INFO.:			FR 2000-14966	A 20001120
			WO 2001-FR3648	W 20011120

OTHER SOURCE(S): MARPAT 136:386879  
 IT 426819-04-7, Tris(bis(trifluoromethyl)methoxysulfonyl)methane  
 RL: CAT (Catalyst use); USES (Uses)  
 (dimerization of isocyanates in presence of super acids for manufacture of urethane-containing polyisocyanates)  
 RN 426819-04-7 CAPLUS  
 CN Methanetrissulfonic acid, tris(2,2,2-trifluoro-1-(trifluoromethyl)ethyl) ester (9CI) (CA INDEX NAME)

L20 ANSWER 7 OF 37 CAPLUS COPYRIGHT 2006 ACS ON STN  
 ACCESSION NUMBER: 1997:16098 CAPLUS  
 DOCUMENT NUMBER: 128:47975  
 TITLE: Preparation of lithium tris(2,2,2-trifluoroethoxy)sulfonylmethanide and tris(2,2,2-trifluoroethoxy)sulfonylmethane  
 INVENTOR(S): Yagupolskiy, Yuri Lubovich; Savina, Tatyana Ivanovna; Khirig, Natalya Bradrenova  
 PATENT ASSIGNEE(S): Institute of Organic Chemistry of National Academy of Sciences, Ukraine, Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 4 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

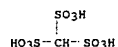
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 09301981	A2	19971125	JP 1996-111654	19960502
PRIORITY APPLN. INFO.:			JP 1996-111654	19960502
IT 199875-26-8P, Tris(2,2,2-trifluoroethoxy)sulfonylmethane				
RL: RCT (Reactant), SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)				
(preparation of lithium tris(2,2,2-trifluoroethoxy)sulfonylmethanide as battery electrolyte from tris(2,2,2-trifluoromethyl)sulfonylmethane)				
RN 199875-26-8 CAPLUS				
CN Methanetrissulfonic acid, tris(2,2,2-trifluoroethyl) ester (9CI) (CA INDEX NAME)				



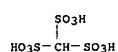
AB  $(\text{F}_3\text{CCCH}_2\text{OSO}_2)_3\text{ClLi}$  (I), useful as an electrolyte for Li batteries, storage batteries, etc., is prepared by treatment of  $(\text{F}_3\text{CCCH}_2\text{OSO}_2)_3\text{CH}$  (II) with Li salts. II is prepared by reaction of  $(\text{F}_3\text{CCSO}_2)_3\text{CH}$  (III) with  $\text{TMSOCH}_2\text{CF}_3$  (IV). A mixture of III and IV was boiled at  $90-92^\circ$  for 6.5 h to give 50% II. II was treated with  $\text{Li}_2\text{CO}_3$  in Et<sub>2</sub>O under stirring for 0.5 h to give 100% I. Molar conductance  $\lambda$  of I was larger than that of  $\text{F}_3\text{CCSO}_2\text{Li}$ .

L20 ANSWER 8 OF 37 CAPLUS COPYRIGHT 2006 ACS on STN  
ACCESSION NUMBER: 1997:69364 CAPLUS  
DOCUMENT NUMBER: 126:211808  
TITLE: Investigations on the acid-strength of  
alkanepolysulfonic acids  
AUTHOR(S): Jueschke, Ralf; Sartori, Peter  
CORPORATE SOURCE: Fachbereich 6 Anorganische Chem., Gerhard-Mercator  
Univ., Duisburg, D-47048, Germany  
SOURCE: Zeitschrift fuer Naturforschung, B: Chemical Sciences  
(1996), 51(12), 1691-1700  
CODEN: ZNBSEN; ISSN: 0932-0776  
PUBLISHER: Verlag der Zeitschrift fuer Naturforschung  
DOCUMENT TYPE: Journal  
LANGUAGE: German

IT 54322-33-7, Methanetrisulfonic acid  
RL: PRP (Properties)  
(preparation of silyl alkanepolysulfonates and estimation of acidity  
by correlation with <sup>29</sup>Si-NMR shift)  
RN 54322-33-7 CAPLUS  
CN Methanetrisulfonic acid (7CI, 9CI) (CA INDEX NAME)

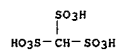


IT 55110-91-3  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(preparation of silyl alkanepolysulfonates and estimation of acidity  
by correlation with <sup>29</sup>Si-NMR shift)  
RN 55110-91-3 CAPLUS  
CN Methanetrisulfonic acid, tripotassium salt (3CI, 9CI) (CA INDEX NAME)

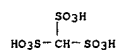


● 3 K  
IT 75533-77-6P 187610-57-7P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
(Reactant or reagent)  
(preparation of silyl alkanepolysulfonates and estimation of acidity  
by correlation with <sup>29</sup>Si-NMR shift)  
RN 75533-77-6 CAPLUS  
CN Methanetrisulfonic acid, barium salt (2:3) (9CI) (CA INDEX NAME)

L20 ANSWER 9 OF 37 CAPLUS COPYRIGHT 2006 ACS on STN  
ACCESSION NUMBER: 1994:630311 CAPLUS  
DOCUMENT NUMBER: 121:230311  
TITLE: Improvement of the synthesis of the tripotassium  
methanetrisulfonate monohydrate  
AUTHOR(S): Sartori, Peter; Jueschke, Ralf  
CORPORATE SOURCE: Fachbereich 6 Anorg. Chem., Univ.-CH, Duisburg,  
Germany  
SOURCE: Journal fuer Praktische Chemie/Chemiker-Zeitung  
(1994), 336(4), 373-4  
CODEN: JPCCEM; ISSN: 0941-1216  
DOCUMENT TYPE: Journal  
LANGUAGE: German  
OTHER SOURCE(S): CASREACT 121:230311  
IT 54322-33-7, Methanetrisulfonic acid  
RL: FMU (Formation, unclassified); RCT (Reactant); FORM (Formation,  
nonpreparative); RACT (Reactant or reagent)  
(improvement of the synthesis of the tripotassium methanetrisulfonate  
monohydrate)  
RN 54322-33-7 CAPLUS  
CN Methanetrisulfonic acid (7CI, 9CI) (CA INDEX NAME)



IT 73224-87-0P  
RL: SPN (Synthetic preparation); PREP (Preparation)  
(improvement of the synthesis of the tripotassium methanetrisulfonate  
monohydrate)  
RN 73224-87-0 CAPLUS  
CN Methanetrisulfonic acid, tripotassium salt, monohydrate (9CI) (CA INDEX  
NAME)

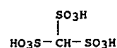


● 3 K

● H<sub>2</sub>O

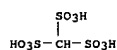
AB The Bagnall-Backer method for the preparation of the title compound [ via  
decarboxylation of acetanilide in SO<sub>3</sub>/H<sub>2</sub>SO<sub>4</sub> to give (HO<sub>3</sub>S)<sub>2</sub>C<sub>6</sub>H<sub>3</sub>NH<sub>2</sub> and  
HC(SO<sub>3</sub>H)<sub>3</sub> (I) then CaO and K<sub>2</sub>CO<sub>3</sub> to give HC(SO<sub>3</sub>K)<sub>3</sub>·H<sub>2</sub>O (II)] is  
improved by the decarboxylation of acetone in SO<sub>3</sub>/H<sub>2</sub>SO<sub>4</sub> to give I which  
with KOH gives 49% II.

L20 ANSWER 8 OF 37 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)



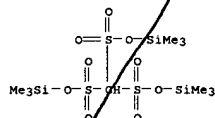
● 3/2 Ba

RN 187610-57-7 CAPLUS  
CN Methanetrisulfonic acid, trisilver(1+) salt (9CI) (CA INDEX NAME)



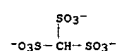
● 3 Ag(I)

IT 187610-60-2P  
RL: SPN (Synthetic preparation); PREP (Preparation)  
(preparation of silyl alkanepolysulfonates and estimation of acidity  
by correlation with <sup>29</sup>Si-NMR shift)  
RN 187610-60-2 CAPLUS  
CN Methanetrisulfonic acid, tris(trimethylsilyl) ester (9CI) (CA INDEX  
NAME)



AB The acidity of alkanepolysulfonic acids was measured using the  
correlation between the <sup>29</sup>Si-NMR shift of the corresponding Me<sub>3</sub>Si ester of an acid  
and the pK<sub>s</sub>1 of the acid. The alkanepolysulfonates RCH(SO<sub>3</sub>SiMe<sub>3</sub>)<sub>2</sub>,  
R<sub>2</sub>C(SO<sub>3</sub>SiMe<sub>3</sub>)<sub>2</sub>, RC(SO<sub>3</sub>SiMe<sub>3</sub>)<sub>3</sub>, and Me<sub>3</sub>SiO<sub>3</sub>S(CR<sub>12</sub>)<sub>n</sub>SO<sub>3</sub>SiMe<sub>3</sub> (R = H, F, Cl,  
Br, I; R<sub>1</sub> = H, F; n = 1-5) were prepared and studied.

L20 ANSWER 10 OF 37 CAPLUS COPYRIGHT 2006 ACS on STN  
ACCESSION NUMBER: 1989:573247 CAPLUS  
DOCUMENT NUMBER: 111:173247  
TITLE: The duodecet rule. Part 2. C-H hydrogen bonding by  
sulfonyl compounds  
AUTHOR(S): Robinson, E. A.  
CORPORATE SOURCE: Erindale Coll., Univ. Toronto, Mississauga, ON, L5L  
1C6, Can.  
SOURCE: THEOCHEM (1989), 55, 29-41  
CODEN: THEODJ; ISSN: 0166-1280  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
IT 123177-61-7  
RL: PRP (Properties)  
(total bond orders at sulfur in)  
RN 123177-61-7 CAPLUS  
CN Methanetrisulfonic acid, ion(3-) (9CI) (CA INDEX NAME)



AB By combining linear relationships between log k and log r, bond order (n)  
and force const. (k) where k is the CS stretching force constant of a  
bond  
of length r, a correlation is established between CS bond lengths and  
simple valence-bond bond orders. For a variety of S(VI) species with  
bonds to electroneg. ligands, including Me groups, this is used to  
demonstrate that the total bond order at S in these species is six,  
consistent with a duodecet rule. Apparently, S-CH<sub>3</sub> groups in compds.  
such  
as CH<sub>3</sub>SO<sub>2</sub>F, CH<sub>3</sub>SO<sub>2</sub>OH, Me<sub>2</sub>SO<sub>2</sub>, and related species compete with other  
ligands for the delocalization of electron pairs into the valence shell  
of  
the central sulfur atom, in this case through hyperconjugation. This  
accounts for the enhanced acidities of hydrogen atoms bonded to  
α-carbon atoms in such compds., and their ability to form hydrogen  
bonds. Evidence for hydrogen bonding in CH<sub>3</sub>SO<sub>2</sub>F, CH<sub>3</sub>SO<sub>2</sub>Cl, and  
(CH<sub>3</sub>)<sub>2</sub>SO<sub>2</sub>,  
and in CH<sub>3</sub>SO<sub>2</sub>OH (via both S-OH and S-CH<sub>3</sub>), is discussed. The use of C-H  
bond lengths and stretching force const. as a possible diagnostic tool  
to  
select mols. capable of CH hydrogen bonding is also discussed.

L20 ANSWER 11 OF 37 CAPLUS COPYRIGHT 2006 ACS ON STN

ACCESSION NUMBER: 1989:553222 CAPLUS  
DOCUMENT NUMBER: 111:153222

TITLE: Process for the preparation of alkyl

INVENTOR(S): Jones, Glenn C.; Nottingham, William D.; Reynolds, Peter W.

PATENT ASSIGNEE(S): Eastman Kodak Co., USA

SOURCE: U.S., 4 pp.

CODEN: USXXAM

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 4827021	A	19890502	US 1988-164663	19880307
CA 1326242	A1	19940118	CA 1989-591956	19890224
WO 8908636	A1	19890921	WO 1989-US763	19890227
W: AU, JP, KR	DE, FR, GB, IT, LU, NL, SE			
AU 8933504	A1	19891005	AU 1989-33504	19890227
AU 609288	B2	19910426		
EP 403528	A1	19901227	EP 1989-903301	19890227
EP 403528	B1	19930210		
R: AT, BE, CH, DE, FR, GB, IT, LI, LU, NL, SE				
JP 03503282	T2	19910725	JP 1989-503132	19890227
JP 2738967	B2	19980408		
AT 85603	E	19930215	AT 1989-903301	19890227
KR 9700138	B1	19970104	KR 1989-72047	19891106
PRIORITY APPLN. INFO.:			US 1988-164663	A 19880307
			EP 1989-903301	A 19890227
			WO 1989-US763	A 19890227

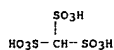
OTHER SOURCE(S): MARPAT 111:153222

IT 54322-33-7, Methanetrissulfonic acid

RL: CAT (Catalyst use); USES (Uses)  
(catalyst, for addition of alkoxymethane with ketene)

RN 54322-33-7 CAPLUS

CN Methanetrissulfonic acid (7CI, 9CI) (CA INDEX NAME)



AB R1OCH2CR3R4CO2R2 (I; R1, R2 = Cl-8 alkyl; R3, R4 = H, alkyl, aryl), useful as solvents in the formation of coating compns., are prepared by addition of R1OCH2CR2 with R3R4CO in the presence of CH2(SO3H)2, CH(SO3H)3, or mixture thereof. A mixture of 23.0 g CH2(OMe)2, 0.071 CH2(SO3H)2, and 0.30 and CH2CO was stirred at 25-40° under N to give 24.9 g I (R1 = R2 = Me, R3 = R4 = H). Similarly prepared was I (R1 = R2 = Et, R3 = R4 = H).

L20 ANSWER 12 OF 37 CAPLUS COPYRIGHT 2006 ACS ON STN

ACCESSION NUMBER: 1986:431749 CAPLUS  
DOCUMENT NUMBER: 105:31749

TITLE: The electrochemistry of a dimeric and two monomeric cis-trioxomolybdenum(VI) complexes containing cyclic triamine ligands in protic and aprotic media: model compounds for the active sites in formate

dehydrogenase

AUTHOR(S): Herrmann, Willy; Wieghardt, Karl

CORPORATE SOURCE: Ruhr-Universität, Bochum, D-4630, Fed. Rep. Ger.

SOURCE: Polyhedron (1986), 5(12), 513-20

CODEN: PLYHDE; ISSN: 0277-5387

DOCUMENT TYPE: Journal

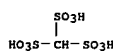
LANGUAGE: English

IT 54322-33-7

RL: PRP (Properties)  
(electrochem. reduction of molybdenum trioxotriazacyclononane or molybdenum trioxotrimethyltriazacyclononane nuclear and dinuclear complexes on mercury in)

RN 54322-33-7 CAPLUS

CN Methanetrissulfonic acid (7CI, 9CI) (CA INDEX NAME)



AB The electrochem. of cis-MoO3L (I; L = N,N',N''-trimethyl-1,4,7-triazacyclononane) or cis-MoO3L' (II; L' = 1,4,7-triazacyclononane) was in protic (CH3SO3H) and aprotic media (DMF) by cyclic voltammetry at the hanging Hg drop (HMD) electrode. I and II are quasi-reversibly reduced by a 2e-, 4H+ step in acidic solns. to give monomeric [LMo(IV)O(OH)2]2+ and [L'Mo(OH)2]2+, which in the case of I is further reduced to a monomeric Mo(III) species which then undergoes a reversible chemical reaction (dimerization). In contrast, reduced II undergoes chemical reactions (dimerization or trimerization of [L'Mo(OH)2]2+ or disproportionation reactions) due to the fact that the unmethylated cyclic amine in II is sterically less demanding. I and II are redox-inactive in DMF (+1.0 to -1.7 V vs. Ag-AgCl at a Pt or a glassy C electrode). Dimeric [L2Mo2O5] (PF6)2, (III) is reversibly reduced to a Mo(V)2 dimer (2e-, 2H+ process) and, finally, to a Mo(III)2 dimer (4e-, 4H+) in 0.1M CH3SO3H at an HMD electrode, contrasting with the behavior in aprotic medium (DMF), Pt electrode, where 2 reversible 1-electron transfer processes generating the blue, mixed-valence species Mo(VI)/(V) and an Mo(V)2 dimer were observed.

L20 ANSWER 13 OF 37 CAPLUS COPYRIGHT 2006 ACS ON STN

ACCESSION NUMBER: 1985:184717 CAPLUS  
DOCUMENT NUMBER: 102:184717

TITLE: Alkoxylation of alcohols and phenols

INVENTOR(S): Moody, Keith

PATENT ASSIGNEE(S): ICI Australia Ltd., Australia

SOURCE: Pat. Specif. (Aust.), 15 pp.

CODEN: ALXXAP

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

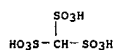
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
AU 538363	B2	19840809	AU 1981-71460	19800613
AU 8171460	A1	19811217		
PRIORITY APPLN. INFO.:			AU 1981-71460	19800613

IT 54322-33-7

RL: CAT (Catalyst use); USES (Uses)  
(catalyst, for alkoxylation of alcs. and phenols)

RN 54322-33-7 CAPLUS

CN Methanetrissulfonic acid (7CI, 9CI) (CA INDEX NAME)



AB Alcs. and phenols were alkoxyated with alkylene oxides in the presence of catalysts consisting of organic sulfonic acids or their salts. The sulfonic acids chosen have an acid strength greater than that of methanesulfonic acid; the cations are chosen from first row transition metals, Be, Mg, Ca, B, Al, Sn, or Zr. Thus, BuOH was ethoxylated with ethylene oxide (6:1 mol ratio) at 160° in the presence of Zn methanesulfonate to give 93.8% ethylene glycol monobutyl ether and small amts. of diethylene glycol monobutyl ether (20.9:1 mol ratio). Other catalyst used were Zn benzenesulfonate or trifluoromethanesulfonate and Al methanedisulfonate.

L20 ANSWER 14 OF 37 CAPLUS COPYRIGHT 2006 ACS ON STN

ACCESSION NUMBER: 1983:523106 CAPLUS  
DOCUMENT NUMBER: 99:123106

TITLE: N-phenylcarbamate ester oligomers

PATENT ASSIGNEE(S): Asahi Chemical Industry Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 6 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

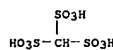
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 58085852	A2	19830523	JP 1981-183739	19811118
JP 62008430	B4	19870223		
PRIORITY APPLN. INFO.:			JP 1981-183739	19811118

IT 54322-33-7

RL: CAT (Catalyst use); USES (Uses)  
(catalysts, for oligomerization of phenylcarbamate esters with methylene donors)

RN 54322-33-7 CAPLUS

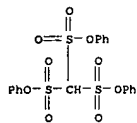
CN Methanetrissulfonic acid (7CI, 9CI) (CA INDEX NAME)



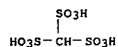
AB N-Phenylcarbamate esters are oligomerized with methylene donors in the presence of solid-supported polysulfonic acids. Thus, 10g Kieselguhr and 3.5g CH2(SO3H)2 (I) [503-40-2] in 10 mL H2O was dried and baked 6 h at 200° to give catalyst containing 14% I. A mixture of the above catalyst 3, Et N-phenylcarbamate (II) 8.25, and dimethoxymethane 1g in 40 mL sulfolane was heated 1 h in an autoclave at 140° to convert 56% II to oligomers [87093-16-2] containing 73% 1,1'-methylenebis(4-ethoxycarbonylaminobenzene) (10097-16-2) and 11% 1,3'-methylenebis(4-ethoxycarbonylaminobenzene) (70381-86-1).



L20 ANSWER 15 OF 37 CAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 1983:504727 CAPLUS  
 DOCUMENT NUMBER: 99:104727  
 TITLE: Methanetrilsulfonic acid derivatives  
 AUTHOR(S): Yagupol'skii, Yu. L.; Savina, T. I.  
 CORPORATE SOURCE: Inst. Org. Khim., Kiev, USSR  
 SOURCE: Zhurnal Organicheskoi Khimii (1983), 19(1), 79-82  
 CODEN: ZORKAE; ISSN: 0514-7492  
 DOCUMENT TYPE: Journal  
 LANGUAGE: Russian  
 OTHER SOURCE(S): CASREACT 99:104727  
 IT 86107-38-2P  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (preparation of)  
 RN 86107-38-2 CAPLUS  
 CN Methanetrilsulfonic acid, triphenyl ester (9CI) (CA INDEX NAME)

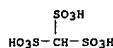


IT 54322-33-7  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (reaction of, with sulfur tetrafluoride)  
 RN 54322-33-7 CAPLUS  
 CN Methanetrilsulfonic acid (7CI, 9CI) (CA INDEX NAME)



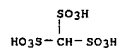
AB CH(SO<sub>3</sub>H)<sub>3</sub> and SF<sub>4</sub> gave CH(SO<sub>2</sub>F)<sub>3</sub>, which with Br, iodine, or Me<sub>3</sub>SiCl gave the corresponding RC(SO<sub>2</sub>F)<sub>3</sub>. CH<sub>2</sub>(SO<sub>2</sub>F)<sub>2</sub> and Ag<sub>2</sub>O gave AgCH(SO<sub>2</sub>F)<sub>2</sub>, which with MeI or C<sub>6</sub>F<sub>5</sub>SCl gave, resp., MeCH(SO<sub>2</sub>F)<sub>2</sub> and C<sub>6</sub>F<sub>5</sub>SCH(SO<sub>2</sub>F)<sub>2</sub>. 4-MeC<sub>6</sub>H<sub>4</sub>SO<sub>3</sub>F and trifluoromorpholinosulfur gave 4-MeC<sub>6</sub>H<sub>4</sub>SO<sub>2</sub>F.

L20 ANSWER 16 OF 37 CAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 1981:174556 CAPLUS  
 DOCUMENT NUMBER: 94:174556  
 TITLE: 2-Hydroxyacetophenone via Fries rearrangement and related reactions. A comparative applied study  
 AUTHOR(S): Hocking, Martin B.  
 CORPORATE SOURCE: Dep. Chem., Univ. Victoria, Victoria, BC, V8W 2Y2, Can.  
 SOURCE: Journal of Chemical Technology and Biotechnology (1979-1982) (1980), 30(11), 626-41  
 CODEN: JCTBDC; ISSN: 0142-0356  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 OTHER SOURCE(S): CASREACT 94:174556  
 IT 54322-33-7  
 RL: CAT (Catalyst use); USES (Uses)  
 (catalysts, for Fries rearrangement of Ph acetate)  
 RN 54322-33-7 CAPLUS  
 CN Methanetrilsulfonic acid (7CI, 9CI) (CA INDEX NAME)

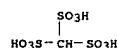


AB PhOAc was prepared directly from PhOH and AcOH in the presence of H<sub>2</sub>SO<sub>4</sub>; thermal rearrangement of PhOAc was studied in the presence of methanesulfonic and -trilsulfonic acids, p-MeC<sub>6</sub>H<sub>4</sub>SO<sub>3</sub>H, and sulfonated cation exchange resin. Catalysis by H<sub>2</sub>SO<sub>4</sub>, H<sub>2</sub>SO<sub>4</sub>.H<sub>2</sub>O, H<sub>3</sub>PO<sub>4</sub>, NaHSO<sub>4</sub>, and CaCl<sub>2</sub> was also studied. The catalysts gave o- and p-HOC<sub>6</sub>H<sub>4</sub>Ac, with larger amts. of the ortho derivative at higher temps. The rates, product ratios, and yields of these processes were compared. AlCl<sub>3</sub>, ZnCl<sub>2</sub>, and BF<sub>3</sub> all gave faster reactions than the proton acids, and higher ortho-para ratios, especially with BF<sub>3</sub> at low temps. The results obtained with the proton acids and other compds. and with the Lewis acids were compared. The object of the studies was to provide a com. route to pyrocatechol.

L20 ANSWER 17 OF 37 CAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 1981:139146 CAPLUS  
 DOCUMENT NUMBER: 94:139146  
 TITLE: Tris(fluorosulfonyl)methane, HC(SO<sub>2</sub>F)<sub>3</sub>  
 AUTHOR(S): Kloeter, Gerhard; Biltzow, Hans; Seppelt, Konrad  
 CORPORATE SOURCE: Anorg. Chem. Inst., Univ. Heidelberg, Heidelberg, D-6900/1, Fed. Rep. Ger.  
 SOURCE: Angewandte Chemie (1980), 92(11), 954-5  
 CODEN: ANCEAD; ISSN: 0044-8249  
 DOCUMENT TYPE: Journal  
 LANGUAGE: German  
 IT 54322-33-7P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
 (preparation and reaction of, with sulfur tetrafluoride)  
 RN 54322-33-7 CAPLUS  
 CN Methanetrilsulfonic acid (7CI, 9CI) (CA INDEX NAME)

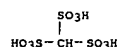


IT 75533-77-6P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
 (preparation and reaction of, with sulfuric acid)  
 RN 75533-77-6 CAPLUS  
 CN Methanetrilsulfonic acid, barium salt (2:3) (9CI) (CA INDEX NAME)



• 3/2 Ba

IT 75533-76-5  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (reaction of, with barium ion)  
 RN 75533-76-5 CAPLUS  
 CN Methanetrilsulfonic acid, monopotassium salt (9CI) (CA INDEX NAME)

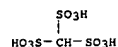


• K

AB Successive treatment of HC(SO<sub>3</sub>K)<sub>3</sub> with Ba<sup>2+</sup>, H<sub>2</sub>SO<sub>4</sub>, and SF<sub>4</sub> gave, via HC(SO<sub>3</sub>Ba/2)<sub>3</sub> and HC(SO<sub>3</sub>H)<sub>3</sub>, HC(SO<sub>2</sub>F)<sub>3</sub> (I), which is a monobasic acid with strength falling between those of HSO<sub>3</sub>F and HNO<sub>3</sub>. Treatment of I with bases gave the salts MC(SO<sub>2</sub>F)<sub>3</sub> (M = K, Rb, Cs and Ag); crystal structures

L20 ANSWER 17 OF 37 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)  
 of the K and Rb salts were detd. Treatment of AgC(SO<sub>2</sub>F)<sub>3</sub> with MeI or X<sub>2</sub> gave, resp., MeC(SO<sub>2</sub>F)<sub>3</sub> and XC(SO<sub>2</sub>F)<sub>3</sub> (X = Cl, Br, I). FC(SO<sub>2</sub>F)<sub>3</sub> was prepd. by fluorinating I with XeF<sub>2</sub>.

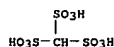
L20 ANSWER 18 OF 37 CAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 1981:68557 CAPLUS  
 DOCUMENT NUMBER: 94:68557  
 TITLE: New electrolytes for direct methane fuel cells  
 AUTHOR(S): Brummer, S. B.; Foss, J.; McHardy, J.; McVeigh, J.; Toland, D.; Turner, M.  
 CORPORATE SOURCE: EIC Corp., Newton, MA, USA  
 SOURCE: Report (1979), DOE/ET/11321-T1, 74 pp. Avail.: NTIS From: Energy Res. Abstr. 1980, 5(10), Abstr. No.  
 15977  
 DOCUMENT TYPE: Report  
 LANGUAGE: English  
 IT 54322-33-7  
 RL: USES (Uses)  
 (electrolytes, for direct-methane fuel cells, development and testing of)  
 RN 54322-33-7 CAPLUS  
 CN Methanetrissulfonic acid (7CI, 9CI) (CA INDEX NAME)



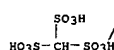
AB A program aimed at developing a fuel-cell electrolyte for the direct oxidation of CH<sub>4</sub> and/or impure H<sub>2</sub> fuels is described. Of interest are di- and tribasic methanesulfonic acids CX<sub>2</sub>(SO<sub>3</sub>H)<sub>2</sub> and CX(SO<sub>3</sub>H)<sub>3</sub> where X is H, F, or Cl. Synthetic routes to CH<sub>2</sub>(SO<sub>3</sub>H)<sub>2</sub> [503-40-2], CH(SO<sub>3</sub>H)<sub>3</sub> [54322-33-7], CCl<sub>2</sub>(SO<sub>3</sub>H)<sub>2</sub> [76371-35-2], and CCl(SO<sub>3</sub>H)<sub>3</sub> [76371-36-3] were identified and optimized. The diphenyl ester of CF<sub>2</sub>(SO<sub>3</sub>H)<sub>2</sub> was prepared and various approaches to CF(SO<sub>3</sub>H)<sub>3</sub> [76371-37-4] were investigated. In parallel with the synthetic program, apparatus was designed and fabricated for the testing of the electrolytes under fuel-cell conditions. A new PTFE test cell was developed for testing small amts. of electrolyte. Electrodes with low Pt loading were developed for use in electrolyte evaluation. Optimum performance with H<sub>3</sub>PO<sub>4</sub> was achieved using 1 mg Pt/cm<sup>2</sup> and 1 mg TFE 30/cm<sup>2</sup> deposited on TFE tape, supported on a Au-plated Ta screen, and sintered. Preliminary half-cell tests using CH<sub>2</sub>(SO<sub>3</sub>H)<sub>2</sub> and CH(SO<sub>3</sub>H)<sub>3</sub> indicated that these acids are insufficiently stable for use as fuel-cell electrolytes. However, tests using CCl<sub>2</sub>(SO<sub>3</sub>H)<sub>2</sub> and CCl(SO<sub>3</sub>H)<sub>3</sub> were encouraging, yielding H<sub>2</sub> oxidation rates equal to or better than those using H<sub>3</sub>PO<sub>4</sub>. Stability tests were conducted by heating a sample of each acid at 130° for 30 days under N<sub>2</sub>, O<sub>2</sub>, and H<sub>2</sub>. At the end of the test, each sample was analyzed for decomposition. In no case did IR anal. indicate significant decomposition and in the case of the chloroacids, only a trace amount of free Cl<sup>-</sup> was observed. Conductivity measurements showed the aqueous acids to be of the same conductivity as aqueous H<sub>3</sub>PO<sub>4</sub>. The dihydrate of CH<sub>2</sub>(SO<sub>3</sub>H)<sub>2</sub> was more conductive than CF<sub>3</sub>SO<sub>3</sub>H.H<sub>2</sub>O [49789-04-0] but less conductive than 100% H<sub>3</sub>PO<sub>4</sub>.

L20 ANSWER 19 OF 37 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)  
 .apprx.113° indicate an expansion from tetrahedral stereochem. and the S-C bond lengths of .apprx.1.81 Å are longer than those for K<sub>2</sub>[CH<sub>2</sub>(SO<sub>3</sub>)<sub>2</sub>] (1.77 Å) and Ca[CH<sub>3</sub>SO<sub>3</sub>]<sub>2</sub> (1.75 Å). The IR (4000 to 50 cm<sup>-1</sup>) and Raman spectra of K<sub>3</sub>[CH(SO<sub>3</sub>)<sub>3</sub>].H<sub>2</sub>O and K<sub>3</sub>[CD(SO<sub>3</sub>)<sub>3</sub>].D<sub>2</sub>O were detd. at 77° K and interpreted in accordance with the structure, and with the use of the spectra of anhyd. K<sub>3</sub>[CH(SO<sub>3</sub>)<sub>3</sub>] and of aq. solns. of the sol. Li salts. The SO<sub>3</sub> groups show their characteristic group frequencies: ν<sub>sym</sub>(C-S) 762, ν<sub>asym</sub>(C-S) 820, δ<sub>sym</sub>(CS<sub>3</sub>) 170, and δ<sub>asym</sub>(CS<sub>3</sub>) .apprx.210 cm<sup>-1</sup>, resp. IR spectra of samples contg. the isotopically dil. H<sub>2</sub>O species confirm the presence of 2 types of H bond per H<sub>2</sub>O mol.

L20 ANSWER 19 OF 37 CAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 1980:145976 CAPLUS  
 DOCUMENT NUMBER: 92:145976  
 TITLE: Crystal structure, and the infrared and Raman spectra, of tripotassium methanetrissulfonate hydrate, K<sub>3</sub>[CH(SO<sub>3</sub>)<sub>3</sub>].H<sub>2</sub>O  
 AUTHOR(S): Hall, John R.; Johnson, Robert A.; Kennard, Colin H. L.; Smith, Graham  
 CORPORATE SOURCE: Dep. Chem., Univ. Queensland, Brisbane, 4067, Australia  
 SOURCE: Journal of the Chemical Society, Dalton Transactions: Inorganic Chemistry (1972-1999) (1980), (1), 149-55  
 CODEN: JCDTBI; ISSN: 0300-9246  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 IT 73224-78-9  
 RL: PRP (Properties)  
 (IR and Raman spectra of aqueous)  
 RN 73224-78-9 CAPLUS  
 CN Methanetrissulfonic acid, tripotassium salt (9CI) (CA INDEX NAME)



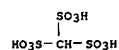
● 3 Li  
 IT 73224-87-0  
 RL: PRP (Properties)  
 (crystal and mol. structure, and IR and Raman spectra of)  
 RN 73224-87-0 CAPLUS  
 CN Methanetrissulfonic acid, tripotassium salt, monohydrate (9CI) (CA INDEX NAME)



● 3 K  
 ● H<sub>2</sub>O

AB The crystal and mol. structure of K<sub>3</sub>[CH(SO<sub>3</sub>)<sub>3</sub>].H<sub>2</sub>O was determined by X-ray diffraction as an aid in the assignment of the IR and Raman spectra. The structure was solved using direct methods and refined by full-matrix least squares to R 0.045 for 839 observed unique reflections. The S-C-S angles of

L20 ANSWER 20 OF 37 CAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 1975:139193 CAPLUS  
 DOCUMENT NUMBER: 82:139193  
 TITLE: Reactions of dipotassium diazomethanedisulfonate in aqueous solution  
 AUTHOR(S): Young, J. Michael  
 CORPORATE SOURCE: Dep. Pharmacol., Univ. Cambridge, Cambridge, UK  
 SOURCE: Journal of the Chemical Society, Perkin Transactions 1: Organic and Bio-Organic Chemistry (1972-1999) (1974), (22), 2541-3  
 CODEN: JCPRB4; ISSN: 0300-922X  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 OTHER SOURCE(S): CDSREACT 82:139193  
 IT 55110-91-3P  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (preparation of)  
 RN 55110-91-3 CAPLUS  
 CN Methanetrissulfonic acid, tripotassium salt (3CI, 9CI) (CA INDEX NAME)



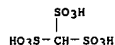
● 3 K

AB Decomposition of (K<sub>2</sub>SO<sub>3</sub>)<sub>2</sub>CH<sub>2</sub> (I) in H<sub>2</sub>O at 4° gave (K<sub>2</sub>SO<sub>3</sub>)<sub>3</sub>CH and (K<sub>2</sub>SO<sub>3</sub>)<sub>2</sub>C:NNH<sub>2</sub>, in N KOH at 70° gave (K<sub>2</sub>SO<sub>3</sub>)<sub>2</sub>C:NNKSO<sub>3</sub>K, and in aqueous piperidine at 70° gave (K<sub>2</sub>SO<sub>3</sub>)<sub>2</sub>CH<sub>2</sub>. I with MeOH gave (K<sub>2</sub>SO<sub>3</sub>)<sub>2</sub>CHOMe.

L20 ANSWER 21 OF 37 CAPLUS COPYRIGHT 2006 ACS on STN  
ACCESSION NUMBER: 1975:64946 CAPLUS  
DOCUMENT NUMBER: 82:64946  
TITLE: Solid catalysts for heterogeneous reactions  
INVENTOR(S): Rona, Peter  
PATENT ASSIGNEE(S): IMI (TAMI) Institute for Research and Development  
SOURCE: Ger. Offen., 21 pp.  
CODEN: GWXXBX  
DOCUMENT TYPE: Patent  
LANGUAGE: German  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 2401958	A1	19740718	DE 1974-2401958	19740116
US 3920582	A	19751118	US 1974-430804	19740104
GB 1446964	A	19760818	GB 1974-1839	19740115
JP 50046587	A2	19750425	JP 1974-7615	19740117
PRIORITY APPLN. INFO.:			IL 1973-41330	A 19730117

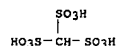
IT 54322-33-7  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(catalyst preparation with, for heterogeneous catalysis or organic reactions)  
RN 54322-33-7 CAPLUS  
CN Methanetrissulfonic acid (7CI, 9CI) (CA INDEX NAME)



AB Catalysts for heterogeneously catalyzed reactions were prepared by impregnation of carriers with sulfonic acids. Thus, 50 g SiO<sub>2</sub>-Al<sub>2</sub>O<sub>3</sub> pellets were treated for 30 min with 14 g benzene-1,3-disulfonic acid in H<sub>2</sub>O at 80°, dried for 6 hr at 150°, and calcined for 6 hr at 200° to give 60/g catalyst. A H<sub>2</sub>O-C<sub>2</sub>H<sub>4</sub> mixture of mol. ratio 1:1 was passed over this catalyst at 195° to give a C<sub>2</sub>H<sub>4</sub>-C<sub>2</sub>H<sub>5</sub>OH conversion of 0.3-0.5 mole % without splitting off acid from this catalyst.

L20 ANSWER 23 OF 37 CAPLUS COPYRIGHT 2006 ACS on STN  
ACCESSION NUMBER: 1963:14557 CAPLUS  
DOCUMENT NUMBER: 58:14557  
ORIGINAL REFERENCE NO.: 58:2371g-h  
TITLE: Esterification catalysts  
INVENTOR(S): Touey, George P.; Goins, Rex H.  
PATENT ASSIGNEE(S): Eastman Kodak Co.  
SOURCE: 3 pp.  
DOCUMENT TYPE: Patent  
LANGUAGE: Unavailable  
PATENT INFORMATION:

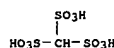
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 3053884		19620911	US 1959-845336	19591009
IT 54322-33-7, Methanetrissulfonic acid (as catalyst for esterification)				
RN 54322-33-7 CAPLUS				
CN Methanetrissulfonic acid (7CI, 9CI) (CA INDEX NAME)				



AB CH<sub>2</sub>(SO<sub>3</sub>H)<sub>2</sub> and CH(SO<sub>3</sub>H)<sub>3</sub> are superior catalysts for preparing esters by treating saturated aliphatic mono- and polyhydroxy alcs. with phenyl dicarboxylic acids or saturated aliphatic carboxylic acids and their anhydrides. A lower concentration of catalyst is required and the ester produced is nearly colorless and is heat stable. Two moles phthalic anhydride and five moles BuOH were refluxed 7 hrs. in the presence of various acid catalysts. The catalyst used, the catalyst concentration based on the phthalic anhydride, and the percent phthalic acid in the product are: CH<sub>2</sub>(SO<sub>3</sub>H)<sub>2</sub>, 0.1, 0.02; CH(SO<sub>3</sub>H)<sub>3</sub>, 0.1, 0.03; H<sub>2</sub>SO<sub>4</sub>, 0.1, 0.35; MeSO<sub>3</sub>H, 0.2, 1.6; MeC<sub>6</sub>H<sub>4</sub>SO<sub>3</sub>H, 1.0, 2.0; (CH<sub>2</sub>SO<sub>3</sub>H)<sub>2</sub>, 0.2, 0.85. Data are given which show the superiority of these two catalyst for the esterification of n-octyl alc. with adipic acid and glycerol with 2-ethylhexanoic acid.

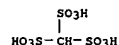
L20 ANSWER 22 OF 37 CAPLUS COPYRIGHT 2006 ACS on STN  
ACCESSION NUMBER: 1963:468923 CAPLUS  
DOCUMENT NUMBER: 59:68923  
ORIGINAL REFERENCE NO.: 59:12707d-f  
TITLE: Alkylation of phenols  
INVENTOR(S): McConnell, Wayne W.; Davis, Herman E.  
PATENT ASSIGNEE(S): Eastman Kodak Co.  
SOURCE: 2 pp.  
DOCUMENT TYPE: Patent  
LANGUAGE: Unavailable  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 3082258		19630319	US 1960-28557	19600512
IT 54322-33-7, Methanetrissulfonic acid (catalyst in alkylation of phenols)				
RN 54322-33-7 CAPLUS				
CN Methanetrissulfonic acid (7CI, 9CI) (CA INDEX NAME)				



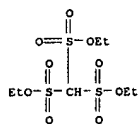
AB The preparation of 2,6-di-tert-butyl-4-methylphenol (I) from 4-methylphenol (II) and isobutylene using hydrated methanedi- or trisulfonic acid catalysis was described. I was useful as an antioxidant and stabilizer for fats and oils. Thus, 112 g. isobutylene was bubbled through a flask containing 108 g. II and 1.1 g. methanedisulfonic acid dihydrate (III) in 100 cc. benzene. In the initial stages the temperature varied from 25-40° due to the cooling effect of isobutylene refluxing in a dry ice-acetone cooled condenser. Thereafter the temperature was held at 40° for a total reaction time of 6 hrs. The supernatant liquid was decanted from the catalyst. Unreacted II (6%) and 2-tert-butyl-4-methylphenol (31% conversion) were extracted with aqueous NaOH. After removal of C<sub>6</sub>H<sub>6</sub>, I was obtained (63% conversion), m. 68-9° (50% aqueous MeOH). Under the same conditions, 5.5 g. III gave an 88% conversion to I. Only a 20% conversion resulted from use of 1,2-ethanedisulfonic acid. Benzenedisulfonic acid caused polymerization of isobutylene. When p-toluenesulfonic acid or H<sub>2</sub>SO<sub>4</sub> was used in concentration of 5% based on the weight of II the product had poorer color and odor. White, odorless I could also be prepared in 84 and 80% conversions, resp., using 2.2 g. III and no solvent or using 1% by weight methanetrissulfonic acid trihydrate.

L20 ANSWER 24 OF 37 CAPLUS COPYRIGHT 2006 ACS on STN  
ACCESSION NUMBER: 1953:70596 CAPLUS  
DOCUMENT NUMBER: 47:70596  
ORIGINAL REFERENCE NO.: 47:11919f-1  
TITLE: Acid-base equilibria in glacial acetic acid  
AUTHOR(S): Smith, Thor L.; Elliott, John H.  
CORPORATE SOURCE: Hercules Powder Co., Wilmington, DE  
SOURCE: Journal of the American Chemical Society (1953), 75, 3566-71  
CODEN: JACSAT; ISSN: 0002-7863  
DOCUMENT TYPE: Journal  
LANGUAGE: Unavailable  
IT 54322-33-7, Methanetrissulfonic acid  
(ionization in AcOH)  
RN 54322-33-7 CAPLUS  
CN Methanetrissulfonic acid (7CI, 9CI) (CA INDEX NAME)



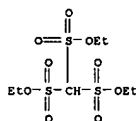
AB Values of H<sub>0</sub> for dilute solns. (5 + 10<sup>-4</sup> to 5 + 10<sup>-3</sup> M) of 11 strong acids in AcOH containing 0.12% water were measured by use of indicators α-naphtholbenzein (I) and o-nitroaniline. H<sub>0</sub> = -log(BH<sup>+</sup>)/(B) + pK<sub>a</sub>, where (BH<sup>+</sup>) and (B) are the concns. of the acidic and basic forms of an indicator, and pK<sub>a</sub> is the thermodynamic dissociation constant for the conjugate acid of the indicator. The pK<sub>a</sub> for I was evaluated as 0.53. The order of increasing acid strength at equal molarities is: HCl, methanesulfonic, sulfuric, carboxymethanesulfonic, chloromethanesulfonic, chlorocarboxymethanesulfonic, HBr, perchloric, methanedisulfonic, chloromethanedisulfonic, and methanetrissulfonic acids. H<sub>0</sub> values for anhydrous solns. of 4 monobasic acids at 5 + 10<sup>-3</sup> M were measured, and from the increased acidity found, equilibrium consts. for the reaction of the acids with water were calculated. H<sub>2</sub>SO<sub>4</sub> was found to be monobasic. Dissociation consts., K<sub>a</sub> of HCl, HBr, HClO<sub>4</sub>, and H<sub>2</sub>SO<sub>4</sub> in AcOH (calculated from conductivity data of Kohlthoff and Willman (C.A. 28, 3644.1)) are 5.1 + 10<sup>-10</sup>, 1.9 + 10<sup>-7</sup>, 9 + 10<sup>-7</sup>, and 7.4 + 10<sup>-9</sup>, resp. The fact that values of ΔpK<sub>a</sub> from conductivity and from H<sub>0</sub> data are in reasonable agreement shows that equilibrium in AcOH involve, primarily, undissocd. species.

L20 ANSWER 25 OF 37 CAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 1952:26486 CAPLUS  
 DOCUMENT NUMBER: 46:26486  
 ORIGINAL REFERENCE NO.: 46:4471e-g  
 TITLE: The synthesis of certain derivatives of methionic acid  
 AUTHOR(S): Shu, Rue-Cheng; Jenkins, Glenn L.; Christian, John E.  
 CORPORATE SOURCE: Purdue Univ., Lafayette, IN  
 SOURCE: Journal of the American Pharmaceutical Association (1912-1977) (1951), 40, 86-8  
 CODEN: JPHAA3; ISSN: 0003-0465  
 DOCUMENT TYPE: Journal  
 LANGUAGE: Unavailable  
 IT 873390-12-6, Methanetrissulfonic acid, triethyl ester (preparation of)  
 RN 873390-12-6 CAPLUS  
 CN Methanetrissulfonic acid, triethyl ester (5CI) (CA INDEX NAME)



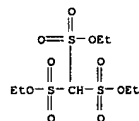
AB N,N'-Di-p-phenylmethionamide, m. 219.2-21°, was prepared by adding CH<sub>2</sub>(SO<sub>2</sub>Cl)<sub>2</sub> in anhydrous C<sub>6</sub>H<sub>6</sub> dropwise to p-phenetidine in C<sub>6</sub>H<sub>6</sub> at 0°, refluxing, cooling, filtering out the precipitate, washing with cold H<sub>2</sub>O, decolorizing with charcoal, and recrystg. from alc. dioxane. By similar procedure were prepared the following analogs: N,N'-di-o-phenetyl, m. 131-2°; N,N'-di-m-phenetyl, m. 166.8-7.8°; N,N'-bis(p-carbobutoxyphenyl)methionamide, m. 180.5-1.0°. Methionate esters: di-1-naphthyl, m. 136.8-7.4°; di-2-naphthyl, m. 231.5-6.1°; bis(o-methoxyphenyl), m. 99.6-100.4°.

L20 ANSWER 26 OF 37 CAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 1952:26485 CAPLUS  
 DOCUMENT NUMBER: 46:26485  
 ORIGINAL REFERENCE NO.: 46:4471d-e  
 TITLE: Triisulfonylmethanes and methanetrissulfonates  
 AUTHOR(S): Samen, Evald  
 CORPORATE SOURCE: Uppsala Univ., Swed.  
 SOURCE: Svensk Kem. Tid. (1951), 63, 31-41  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 IT 873390-12-6, Methanetrissulfonic acid, triethyl ester (preparation of)  
 RN 873390-12-6 CAPLUS  
 CN Methanetrissulfonic acid, triethyl ester (5CI) (CA INDEX NAME)



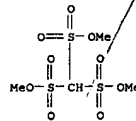
AB cf. C.A. 45, 10190b. Review of work by S. and others, with complementary expts. Refluxing CH(SO<sub>2</sub>Et)<sub>3</sub> with absolute alc. and CHCl<sub>3</sub> produced no ester, even with H<sub>2</sub>SO<sub>4</sub> as catalyst. A trisulfone can be titrated with Br and KBr (methyl orange indicator). CBr(SO<sub>2</sub>Et)<sub>3</sub> refluxed with powdered Ag or K pellets in C<sub>6</sub>H<sub>6</sub> failed to produce C<sub>2</sub>(SO<sub>2</sub>Et)<sub>6</sub>, and a mixture of Et<sub>2</sub>C(CO<sub>2</sub>H)<sub>2</sub>, PhSH, and anhydrous HCl produced no hexasulfide. Br added to CH(SO<sub>2</sub>Et)<sub>3</sub> (I) in H<sub>2</sub>O gives CBr(SO<sub>2</sub>Et)<sub>3</sub> (II), needles, m. 60°-60.5°, and decomposing 110°. II liberates iodine from KI, but I does not.

L20 ANSWER 27 OF 37 CAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 1951:59987 CAPLUS  
 DOCUMENT NUMBER: 45:59987  
 ORIGINAL REFERENCE NO.: 45:10190b-d  
 TITLE: Ethyl methanetrissulfonate and its hydrolysis  
 AUTHOR(S): Samen, Evald  
 CORPORATE SOURCE: Univ. Uppsala, Swed.  
 SOURCE: Arkiv foer Kemi (1951), 3, 303-8  
 CODEN: ARKEAD; ISSN: 0365-6128  
 DOCUMENT TYPE: Journal  
 LANGUAGE: Unavailable  
 IT 873390-12-6, Methanetrissulfonic acid, triethyl ester (and its hydrolysis)  
 RN 873390-12-6 CAPLUS  
 CN Methanetrissulfonic acid, triethyl ester (5CI) (CA INDEX NAME)



AB cf. C.A. 44, 1400d, 9339c. Gentle refluxing of 5.8 g. HC(SO<sub>3</sub>Ag)<sub>3</sub> for 14 hrs. with 5 g. EtI in 30 ml. C<sub>6</sub>H<sub>6</sub> yielded 2.4 g. nearly pure HC(SO<sub>2</sub>OEt)<sub>3</sub> (I), fine needles, m. 74° (from C<sub>6</sub>H<sub>6</sub>-petr. ether). Br water added to I in H<sub>2</sub>O causes an immediate white precipitate (II), which dissolves rapidly to a clear solution (III). Both II and III liberate iodine from KI. I in absolute EtOH reacts with Br immediately, less rapidly in Me<sub>2</sub>CO, and slowly in glacial AcOH, the addition of water to the glacial AcOH causes a disappearance of the Br color. I in NaOH causes a slow decrease in the concentration of NaOH, the anion of HC(SO<sub>2</sub>OH)<sub>3</sub> being unstable in alkali. A dilute alkaline solution of HC(SO<sub>2</sub>OK)<sub>3</sub> uses up alkali and, after acidification the solution, reduces MnO<sub>4</sub>- with the probable production of SO<sub>3</sub>2-. The 1st step in the hydrolysis of I was found to be catalyzed by H<sub>3</sub>O+. In water (no mineral acid), the bimol. constant = 0.316 l./moles-min. and in 0.050 N and 0.100 N HCl the pseudounimol. consts. = 0.0189 and 0.0336/min., resp. The hydrolysis measurements were carried out at 25° in a glass-stoppered flask and periodic samples were titrated with KBr and Br (Me orange) for the HCl catalyzed studies.

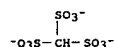
L20 ANSWER 28 OF 37 CAPLUS COPYRIGHT 2006 ACS on STN  
 ACCESSION NUMBER: 1950:49172 CAPLUS  
 DOCUMENT NUMBER: 44:49172  
 ORIGINAL REFERENCE NO.: 44:9339a-b  
 TITLE: Hydrolysis of methyl methanetrissulfonate  
 AUTHOR(S): Samen, Evald  
 CORPORATE SOURCE: Univ. of Uppsala, Swed.  
 SOURCE: Acta Chemica Scandinavica (1950), 4, 397-8  
 CODEN: ACHSE7; ISSN: 0904-213X  
 DOCUMENT TYPE: Journal  
 LANGUAGE: Unavailable  
 IT 872793-71-0, Methanetrissulfonic acid, trimethyl ester (hydrolysis velocity of)  
 RN 872793-71-0 CAPLUS  
 CN Methanetrissulfonic acid, trimethyl ester (5CI) (CA INDEX NAME)



AB The hydrolysis of CH(SO<sub>3</sub>Me)<sub>3</sub> (I) in aqueous HCl was studied by titration with Br and an azo indicator (methyl orange). (It was assumed that only unhydrolyzed triester absorbed Br.) The reaction was found to be pseudounimol. I was prepared from MeI and CH(SO<sub>3</sub>Ag)<sub>3</sub>.

L20 ANSWER 29 OF 37 CAPLUS COPYRIGHT 2006 ACS ON STN  
ACCESSION NUMBER: 1950:28491 CAPLUS  
DOCUMENT NUMBER: 44:28491  
ORIGINAL REFERENCE NO.: 44:5552b-d  
TITLE: Aluminum methionate  
INVENTOR(S): Christian, John E.; Jenkins, Glenn L.  
PATENT ASSIGNEE(S): Purdue Research Foundation  
DOCUMENT TYPE: Patent  
LANGUAGE: Unavailable  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	US 2504107		19500418	US 1946-701091	19461004
IT	855840-41-4,				
	Methanetrissulfonic acid, aluminum salt				
	(preparation of)				
RN	855840-41-4				
	CAPLUS				
CN	Methanetrissulfonic acid, aluminum salt (5CI) (CA INDEX NAME)				

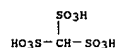


● Al<sup>3+</sup>

AB Certain Al alkyl sulfonates are effective as antiperspirants, e.g. Al methionate (I), Al ethanedisulfonate, Al methanetrissulfonate, Al methanesulfonate, Al sulfoacetate, Al o-sulfobenzoate. General requirements are: the Al ion or its equivalent; one or more sulfo groups; an alkyl group. The more sulfo groups, the greater is the astringency. I is prepared by adding a solution of Al<sub>2</sub>(SO<sub>4</sub>)<sub>3</sub> to a solution of Ca methionate in water, digesting the mixture for 10 min., and filtering it. The solution of I is concentrated, and EtOH is added until I crystallizes out. I is hygroscopic, soluble in water, does not crystallize out of astringent creams. The other Al salts are prepared by treating the respective Ba compounds. With Al<sub>2</sub>(SO<sub>4</sub>)<sub>3</sub> solution These antiperspirants are harmless to skin and fabrics.

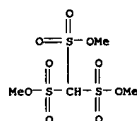
L20 ANSWER 31 OF 37 CAPLUS COPYRIGHT 2006 ACS ON STN  
ACCESSION NUMBER: 1949:27346 CAPLUS  
DOCUMENT NUMBER: 43:27346  
ORIGINAL REFERENCE NO.: 43:5035h-1  
TITLE: Reaction of acetylene and acetic acid. Societe des usines chimiques Rhone-Poulenc  
DOCUMENT TYPE: Patent  
LANGUAGE: Unavailable  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	FR 867066		19410926	FR	19400224
IT	54322-33-7,				
	Methanetrissulfonic acid				
	(catalyst of HgO, HgSO <sub>4</sub> and, in C <sub>2</sub> H <sub>2</sub> reaction with AcOH)				
RN	54322-33-7				
	CAPLUS				
CN	Methanetrissulfonic acid (7CI, 9CI) (CA INDEX NAME)				



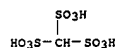
AB With a mixture of sulfonic acids containing CH-(SO<sub>3</sub>H)<sub>3</sub> 36, HgSO<sub>4</sub> 21, and HgO 14 as catalyst, AcOH 5600 g. and C<sub>2</sub>H<sub>2</sub> give CH<sub>2</sub>CHOAc or MeCH(OAc)<sub>2</sub>. The sulfonic acid mixture is prepared by adding 63% H<sub>2</sub>SO<sub>4</sub> 1070 to Ac<sub>2</sub>O 400 g. slowly so that the temperature does not rise above 115°, letting stand 3 hrs. at 120°, adding glacial AcOH 500 g. with the temperature at 120° another 3 hrs., and then more glacial AcOH 3000 g., with stirring 0.5 hr. The mixture contains 15% CH (SO<sub>3</sub>H)<sub>3</sub>.

L20 ANSWER 30 OF 37 CAPLUS COPYRIGHT 2006 ACS ON STN  
ACCESSION NUMBER: 1950:7342 CAPLUS  
DOCUMENT NUMBER: 44:7342  
ORIGINAL REFERENCE NO.: 44:1400d-f  
TITLE: Methyl methanetrissulfonate  
AUTHOR(S): Samen, Evald  
SOURCE: Arkiv foer Kemi (1949), 1, 231-3  
CODEN: ARKEAD; ISSN: 0365-6128  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
IT 872793-71-0, Methanetrissulfonic acid, trimethyl ester (preparation of)  
RN 872793-71-0 CAPLUS  
CN Methanetrissulfonic acid, trimethyl ester (5CI) (CA INDEX NAME)



AB cf. C.A. 37, 5015.8. Tri-Me methanetrissulfonate (I) was prepared for the first time by refluxing 11.5 g. dry CH(SO<sub>2</sub>OAc)<sub>3</sub> (cf. C.A. 25, 915) 8 hrs. with 9 g. MeI in 50 ml. C<sub>6</sub>H<sub>6</sub>; the filtrate from the precipitated AgI deposited 1.8 g. I which separated from boiling C<sub>6</sub>H<sub>6</sub> in long fine needles, m. 110-111°. I possesses strong acid properties and is sparingly soluble in C<sub>6</sub>H<sub>6</sub>, Et<sub>2</sub>O, and CHCl<sub>3</sub>, but more soluble in H<sub>2</sub>O. I (68.09 mg.) in 10 ml. boiling H<sub>2</sub>O was hydrolyzed in 1 min.; a 0.01 M solution in H<sub>2</sub>O was half hydrolyzed in 20 hrs. at room temperature I (0.6 g.) in 10 ml. H<sub>2</sub>O at 0° reacted immediately with an equivalent amount of Br in cold H<sub>2</sub>O, forming 0.4 g. C<sub>4</sub>H<sub>9</sub>O<sub>9</sub>BrS<sub>3</sub> (II), m. 140°. II liberated iodine from KI instantly and quantitatively. Br in AcOH reacted slowly with I in the same solvent. Addition of H<sub>2</sub>O caused the Br color to vanish immediately.

L20 ANSWER 32 OF 37 CAPLUS COPYRIGHT 2006 ACS ON STN  
ACCESSION NUMBER: 1947:11308 CAPLUS  
DOCUMENT NUMBER: 41:11308  
ORIGINAL REFERENCE NO.: 41:2303e-g  
TITLE: Diameter changes of gelatinized coacervate drops of the complex coacervate gelatin-gum arabic, resulting from a change in pH of, or from the addition of neutral salts to, the surrounding medium. I de Jong, H. G. Bungenberg; Landsmeer, J. M. F. Univ., Leiden  
CORPORATE SOURCE: Recueil des Travaux Chimiques des Pays-Bas et de la Belgique (1946), 65, 606-13  
CODEN: RTCPB4; ISSN: 0370-7539  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
IT 55110-91-3, Methanetrissulfonic acid, tripotassium salt (effect on diameter changes of coacervate drops of gelatin-gum arabic)  
RN 55110-91-3 CAPLUS  
CN Methanetrissulfonic acid, tripotassium salt (3CI, 9CI) (CA INDEX NAME)

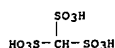


● 3 K

AB Diameter changes of coacervate drops (100-200 μ) reached equilibrium quickly (5-10 min.) in media of a given pH or salt concentration. The changes were followed microscopically at salt concns. low enough (10-40 milliequiv. per l.) to allow reversibility in the swelling and shrinking. The diameter is a min. at the pH (3.7) where the H<sub>2</sub>O content is a min. Reversible swelling due to addition of a salt (KCl, CaCl<sub>2</sub>, LaCl<sub>3</sub>, K<sub>2</sub>SO<sub>4</sub>, or K<sub>3</sub>CH(SO<sub>3</sub>)<sub>3</sub>) is least for the 1-1 valence type and increases as the salt deviates from this valence type (double valence rule).

L20 ANSWER 33 OF 37 CAPLUS COPYRIGHT 2006 ACS on STN  
ACCESSION NUMBER: 1944:16250 CAPLUS  
DOCUMENT NUMBER: 38:16250  
ORIGINAL REFERENCE NO.: 38:2347f-g  
TITLE: Reaction of oleum with AcOH or Ac2O  
INVENTOR(S): Cockrell, Frank O.  
PATENT ASSIGNEE(S): E. I. du Pont de Nemours & Co.  
DOCUMENT TYPE: Patent  
LANGUAGE: Unavailable  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

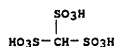
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2333701		19431109	US 1940-365947	19401116
IT 54322-33-7, Methanetrissulfonic acid (preparation of)				
RN 54322-33-7 CAPLUS				
CN Methanetrissulfonic acid (7CI, 9CI) (CA INDEX NAME)				



AB Methanetrissulfonic acid is prepared by a process involving adding HOAc or Ac2O to oleum, in a proportion of 4 to 7 parts of oleum to each part of the HOAc or Ac2O, the temperature being allowed to rise gradually to 65-85° during the addition of 50-75% and not above 90° during the addition of the remainder, of the Ac2O or HOAc, and completing the reaction by holding the mixture at 90-100°.

L20 ANSWER 34 OF 37 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)  
(010):(111) = 54° 5'; (001):(111) = 57° 30'; (001):- (102) = 29° 25'; (010):(.hivin.110) = 43° 50'; plane of the optical axes (100); the sharp bisectrix is (010);  $p > v$ ; the crystals are optically negative. The normal TI salt is anhyd. Normal Ba salt (9H2O); at 25°, 100 g. water dissolves 0.845 g. anhyd. salt; crystallographic properties: rhombic system; a:b:c = 0.834:1:0.564; observed forms (212), (010), (110), (111) and (120); angles:(010):(110) = 50° 11'; (010):(111) = 64° 57'; (010):(212) = 76° 47'; (010):(120) = 31° 30'; plane of the optical axes (010). Normal NH4 salt, anhyd.; crystallographic properties: rhombic system; a:b:c = 0.9573:1:1.7022; observed forms (001), (011), (101), (110) and (211); angles:(001):- (011) = 59° 34'; (100):(101) = 29° 21'; (100):(110) = 43° 44'; (100):(211) = 29° 16'. PCl5 with the free acid does not give the trisulfonyl chloride, SO2 being evolved; therefore, deriva. could not be prep'd.

L20 ANSWER 34 OF 37 CAPLUS COPYRIGHT 2006 ACS on STN  
ACCESSION NUMBER: 1932:23284 CAPLUS  
DOCUMENT NUMBER: 26:23284  
ORIGINAL REFERENCE NO.: 26:2413g-1,2414a-d  
TITLE: The chlorination of methanetrissulfonic acid  
AUTHOR(S): Backer, H. J.  
SOURCE: Recueil des Travaux Chimiques des Pays-Bas et de la Belgique (1932), 51, 374-80  
CODEN: RTCPB4; ISSN: 0370-7539  
DOCUMENT TYPE: Journal  
LANGUAGE: Unavailable  
IT 54322-33-7, Methanetrissulfonic acid (chlorination of)  
RN 54322-33-7 CAPLUS  
CN Methanetrissulfonic acid (7CI, 9CI) (CA INDEX NAME)



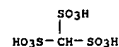
AB cf. C. A. 25, 75. The chlorination of CH(SO3H)3 may be carried out by heating 7.8 g. of the tri-K salt and 0.1 g. I in 60 cc. water containing 2 g.

Cl in a sealed tube at 200° for 10 hrs. After evaporating the contents of the tube and recrystg. the residue 6 times from its weight of water, tri-K

chloromethanetrissulfonate was obtained in a pure state in 70% yield; it does not contain H2O; at 25° 100 g. water dissolves 3.38 g.; crystallographic properties: monoclinic system; a:b:c = 0.8040:1:0.7659;  $\beta$  = 87° 52'; observed forms (.hivin.111), (010), (111), (101) and (011); angles: (010):(011) 52° 34'; (010):(111) = 61° 27'; (100):(.hivin.101) = 42° 36'; (100):(101) = 44° 33'; (010):(.hivin.111) = 60° 38'. For the preparation of the free acid and other salts the tristrychnine salt, which crystallizes without H2O, was used. The free acid (4.5 H2O) m. 160-5° but 180-2° in the presence of P2O5; at 25°, 100 g. water dissolves 254.7 g. of the anhydrous acid. Normal Li salt (8 H2O): 100 g. water dissolves 109.9 g.

of the anhydrous salt; crystalline properties: rhombic system; a:b:c = 0.933:1:0.708; observed forms (110), (011) and (010); angles: (110):(010) = 46° 59'; (.hivin.11): (100) = 52° 43'; (010):(011) = 54° 50'; (110):(011) = 66° 51'. The normal Na salt does not contain H2O on crystallization from a saturated hot solution but 3 H2O on evaporating a solution at room temperature; at 25°, 100 g. water dissolves 21.8 g. of the trihydrate. Normal Rb salt (1H2O): 100 g. water dissolves at 25°, 3.34 g. of the anhydrous salt; crystalline properties: rhombic system; a:b:c = 0.9827:1:0.5437; observed forms (101), (010), (111), (221), (100), (041), (001) and (210), sometimes (110); angles: (001):(111) = 37° 48'; (100):(110) = 45° 30'; (001):(101) = 29° 1'; (001):- (221) = 57° 20'; (001):(041) = 65° 23'; (100):(210) = 26° 12'; (101):(111) = 25° 20'. The normal Cs salt (1 H2O) consists of rhombic plates; at 25°, 100 g. water dissolves 5.49 g. of the crystallized salt; crystallographic properties: rhombic system; a:b:c = 0.9646:1:1.0845; observed forms (100), (001), (010), (111), (102), (101), (210) and (112); angles:(100):(101) = 41° 39'; (100):(210) = 25° 45'; (100):(112) = 63° 47'; (100):(111) = 53° 0';

L20 ANSWER 35 OF 37 CAPLUS COPYRIGHT 2006 ACS on STN  
ACCESSION NUMBER: 1932:8729 CAPLUS  
DOCUMENT NUMBER: 26:8729  
ORIGINAL REFERENCE NO.: 26:962g-1  
TITLE: The salts of methanetrissulfonic acid  
AUTHOR(S): Backer, H. J.; Terpstra, P.  
SOURCE: Recueil des Travaux Chimiques des Pays-Bas et de la Belgique (1931), 50, 1069-77  
CODEN: RTCPB4; ISSN: 0370-7539  
DOCUMENT TYPE: Journal  
LANGUAGE: Unavailable  
IT 54322-33-7, Methanetrissulfonic acid (and salts)  
RN 54322-33-7 CAPLUS  
CN Methanetrissulfonic acid (7CI, 9CI) (CA INDEX NAME)

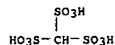


AB The normal K, Ag and TI salts of methane-trissulfonic acid have been described (cf. Backer, C. A. 25, 915); the present paper deals with other salts, which were prepared in the usual way. Methanetrissulfonic acid contains 3H2O, m. 162-162.5°; 100 g. of water at 25° dissolves 221 g. of the anhydrous acid and 510 g. of the crystallized compound

Detailed crystallographic data are given for the normal NH4 salt (contains 0.5 H2O; crystals are of the monoclinic system), the normal Li salt (4 H2O; monoclinic system), normal Na salt (3 H2O; very thin monoclinic plates), normal Rb salt (1 H2O; rhombic system, bisphenoidal class), normal Cs salt (1 H2O; monoclinic system), normal Ag salt (1 H2O; triclinic system), normal Ca salt (12 H2O; rhombic system), normal Ba salt (9 H2O; monoclinic crystals), normal La salt (6 H2O; monoclinic crystals),

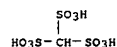
and normal cinchonine salt (8 H2O; rhombic, pseudotetragonal crystals). The mono-K dibrucine salt was obtained from the tri-K salt and an equivalent amount of brucine acetate; it contains 9 H2O. The K and Rb salts are isomorphous and give mixed crystals. Sometimes small anhydrous triclinic crystals of the Cs salt were obtained and a triclinic dihydrate was prepared

L20 ANSWER 36 OF 37 CAPLUS COPYRIGHT 2006 ACS ON STN  
ACCESSION NUMBER: 1931:8598 CAPLUS  
DOCUMENT NUMBER: 25:8598  
ORIGINAL REFERENCE NO.: 25:915a-1  
TITLE: Methanetrisulfonic acid  
AUTHOR(S): Backer, H. J.; Klaassens, K. H.  
SOURCE: Recueil des Travaux Chimiques des Pays-Bas et de la  
Belgique (1931), 49, 1107-17  
CODEN: RTCPB4; ISSN: 0370-7539  
DOCUMENT TYPE: Journal  
LANGUAGE: Unavailable  
IT 54322-33-7, Methanetrisulfonic acid  
(and salts)  
RN 54322-33-7 CAPLUS  
CN Methanetrisulfonic acid (7CI, 9CI) (CA INDEX NAME)



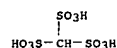
AB CH(SO<sub>3</sub>H)<sub>3</sub> has already been prepared: (1) by Theilkuhl (Ann. 147, 134 (1868)) on heating Ca Me sulfate with H<sub>2</sub>SO<sub>4</sub>; (2) by Bagnall (J. Chemical Society 75, 278(1899)) on sulfonating Ac derivs. of aromatic amines; (3) by oxidation of HSC(SO<sub>3</sub>H)<sub>3</sub> (Albrecht, Ann. 161, 139(1872); cf. Backer, C. A. 24, 76); (4) by the action of K<sub>2</sub>SO<sub>3</sub> on O<sub>2</sub>NCH(SO<sub>3</sub>H)<sub>2</sub> (Rathke, Ann. 167, 219(1873)), which is formed by the action of K<sub>2</sub>SO<sub>3</sub> of O<sub>2</sub>NCCl<sub>3</sub>; it is, however, to be recommended to isolate the O<sub>2</sub>NCH(SO<sub>3</sub>H)<sub>2</sub>, which is formed as an intermediate product; (5) on heating N<sub>2</sub>C(SO<sub>3</sub>H)<sub>2</sub> with acids, water or KHSO<sub>3</sub> (von Pechmann, Ber. 28, 2382(1895); Fantl and Fisch, C. A. 24, 1841; (6) by sulfonation of CH<sub>2</sub>(SO<sub>3</sub>H)<sub>2</sub>. All these methods, except 1, are discussed in the present paper. Method 6: On heating CH<sub>2</sub>(SO<sub>3</sub>H)<sub>2</sub> with SO<sub>3</sub> (2.5 mols.) during 5 hrs. at 170°, CH(SO<sub>3</sub>H)<sub>3</sub> may be obtained as the K salt with 10% yield. Method 2: sulfonation of PhNHAc 0.5 mol. AcNHPh is introduced slowly into 600 g. fuming H<sub>2</sub>SO<sub>4</sub> containing 35% SO<sub>3</sub>, the mixture being heated 3 hrs. at 130° with mech. stirring: yield of the tri-K salt 57%; on carrying out the same reaction with succinylamide, a small yield of the same compound was obtained. Method 3: 0.1 mol. HSC(SO<sub>3</sub>H)<sub>3</sub>, in 1. water is oxidized at room temperature by a current of Cl with the gradual addition of 80 g. KHC0<sub>3</sub>; yield 90%. Method 4: O<sub>2</sub>NCH(SO<sub>3</sub>H)<sub>2</sub> was prepared according to Rathke (loc. cit.) by adding 82 g. O<sub>2</sub>NCCl<sub>3</sub>, gradually to 450 g. K<sub>2</sub>SO<sub>3</sub> in 900 cc. water, heated to 75°, and keeping the temperature at 80°; yield 40% of the anhydrous di-K salt, which dissolves in water at 25° to the extent of 1.16%. The normal strychnine salt of O<sub>2</sub>NCH(SO<sub>3</sub>H)<sub>2</sub> crystallizes with 3.5 H<sub>2</sub>O, the free acid itself with 2 H<sub>2</sub>O while the normal Na and Tl salts crystallize without H<sub>2</sub>O; both the latter salts are easily soluble in water. On heating the K salt with K<sub>2</sub>SO<sub>3</sub> in a sealed tube at 140°, CH(SO<sub>3</sub>H)<sub>3</sub> is obtained in 67% yield. Method 5: N<sub>2</sub>C(SO<sub>3</sub>H)<sub>2</sub>, prepared according to von Pechmann (loc. cit.), may be converted into CH(SO<sub>3</sub>H)<sub>3</sub> by the action of KHSO<sub>3</sub> at 60° and finally on the water bath (yield 62%), decomposing the compound with water or introducing it into dilute

L20 ANSWER 37 OF 37 CAPLUS COPYRIGHT 2006 ACS ON STN  
ACCESSION NUMBER: 1930:16847 CAPLUS  
DOCUMENT NUMBER: 24:16847  
ORIGINAL REFERENCE NO.: 24:1841a-b  
TITLE: Methanotrisulfonic acid  
AUTHOR(S): Fantl, Paul; Fisch, Julius  
SOURCE: Journal fuer Praktische Chemie (Leipzig) (1930), 124, 159-62  
CODEN: JPCEAO; ISSN: 0021-8383  
DOCUMENT TYPE: Journal  
LANGUAGE: Unavailable  
IT 55110-91-3, Methanetrisulfonic acid, hydroxy-, tripotassium salt (preparation of)  
RN 55110-91-3 CAPLUS  
CN Methanetrisulfonic acid, tripotassium salt (3CI, 9CI) (CA INDEX NAME)



● 3 K

IT 54322-33-7, Methanetrisulfonic acid (salts)  
RN 54322-33-7 CAPLUS  
CN Methanetrisulfonic acid (7CI, 9CI) (CA INDEX NAME)



AB N<sub>2</sub>C(SO<sub>3</sub>K)<sub>2</sub> and KHSO<sub>3</sub> give CH(SO<sub>3</sub>K)<sub>3</sub> and not HOC(SO<sub>3</sub>K)<sub>3</sub> (cf. v. Pechmann, Ber. 28, 2374(1898)). The K, Ba and Ag salts were prepared and analyzed.

L20 ANSWER 36 OF 37 CAPLUS COPYRIGHT 2006 ACS ON STN (Continued)  
HCl, the latter reaction giving a 40% yield. On introducing the diazo compd. into concd. HCl at 0°, ClCH(SO<sub>3</sub>H)<sub>2</sub> is obtained. The following salts of CH(SO<sub>3</sub>H)<sub>3</sub> and the acid itself were prepd. in the usual way: The free acid with 3.5 H<sub>2</sub>O, m. 156°; the tri-K salt, rhombic prisms with 1 H<sub>2</sub>O: 100g. of water dissolve at 25°, 1.202 g. of the anhyd. salt and 1.261 g. of the crystd. salt. Crystallographic properties (P. TERPSTRA): rhombic system, bisphenoidic class D<sub>2</sub>; a: b: c = 0.9977:1:1.3604. Forms: a = (100); b = (010); c = (001); p = (101); m = (110); o = (111); Q = (1.hivin.11); q = (011); s = (121); angles: a = m = 44° 56'; c:p = 52° 38'; a: " = 51° 28'; b:m = 51° 34'; c: q = 52° 36'; o: s = 19° 22'. The crystals obtained by evapn. at ordinary temp. have a larger dimension in the direction of the b-axis. The crystals show a marked piezoelectricity; the plane of the optical axes is (001); the a-axis is the sharp bisectrix; p < v. For Na light 2ε 83° 1'; α = 1.513; β = 1.5253; γ = 1.5270; 2V = 51° 45'. The tri-Tl salt also contains 1H<sub>2</sub>O; crystallographic properties (P. TERPSTRA): rhombic system, bisphenoidic class; a: b: c = 0.9971:1:1.3009; forms: m = (110); p = (101); q = (011); s = (1.hivin.11); " = (111); the crystals possess either the form s or the form ", which have never been found to occur in the same crystal. Angles: m: m = 90° 10'; p:p = 105° 4'; q:q = 104° 54'; s:s = 123° 0'; p:s = 38° 20'; s:q = 38° 29'. The plane of the optical axes is (001); the sharp bisectrix (010). By means of a prism formed by (1.hivin.11) and (1.hivin.11) the refractive index β has been detd. to be 1.739, 1.743, 1.768 for λ = 578, 546, 436, resp. The crystals are piezoelectrical. The tri-Ag salt contains 1 H<sub>2</sub>O; the Ba salt, 9 H<sub>2</sub>O; the latter is difficultly sol. in water, only to the extent of 0.1%. On mixing without precautions the solns. of the K salt and BaCl<sub>2</sub>, a double salt of Ba and K is obtained, CHO<sub>9</sub>S<sub>3</sub>KBa.3H<sub>2</sub>O, which, after several recrystns. from a large amount of water, gives the pure Ba salt. The Ca salt contains 12 H<sub>2</sub>O and the La salt 6 H<sub>2</sub>O (cf. Backer and Klaassens, C. A. 24, 4729).

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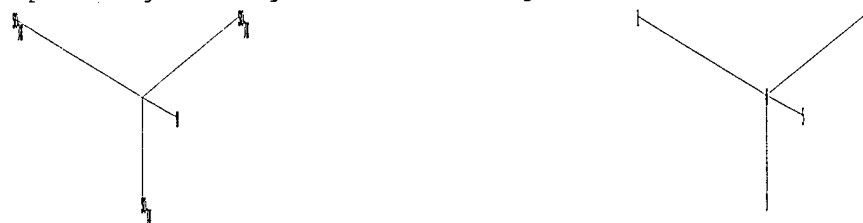
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chain nodes :

1 2 3 4 5

chain bonds :

1-4 2-4 3-4 4-5

exact bonds :

1-4 2-4 3-4 4-5

Match level :

1:CLASS 2:CLASS 3:CLASS 4:CLASS 5:CLASS



L21        STRUCTURE UPLOADED

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FULL SEARCH INITIATED 15:22:00 FILE 'REGISTRY'  
FULL SCREEN SEARCH COMPLETED -        99 TO ITERATE

100.0% PROCESSED            99 ITERATIONS            9 ANSWERS  
SEARCH TIME: 00.00.01

L22            9 SEA SSS FUL L21

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	ENTRY	SESSION
FULL ESTIMATED COST	166.94	921.18
DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)	SINCE FILE	TOTAL
	ENTRY	SESSION
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FILE COVERS 1907 - 29 Aug 2006 VOL 145 ISS 10  
FILE LAST UPDATED: 28 Aug 2006 (20060828/ED)

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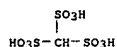
=> s l22  
L23            30 L22

=> d ibib hitstr abs 1-30

L23 ANSWER 1 OF 30 CAPLUS COPYRIGHT 2006 ACS on STN  
ACCESSION NUMBER: 2005:426557 CAPLUS  
DOCUMENT NUMBER: 142:463900  
TITLE: Acylation process for the preparation of  
2,3,5-trimethylhydroquinone diacylates in the  
presence of methanetrissulfonic acid catalyst  
INVENTOR(S): Aquino, Fabrice; Bonrath, Werner; Pace, Francesco  
PATENT ASSIGNEE(S): DSM IP Assets B.V., Neth.  
SOURCE: PCT Int. Appl., 10 pp.  
CODEN: PIXXD2  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2005044775	A1	20050519	WO 2004-EP12058	20041026
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
EP 1680392	A1	20060719	EP 2004-790843	20041026
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, FI, RO, CY, TR, BG, CZ, EE, HU, PL, SK				
PRIORITY APPLN. INFO.: EP 2003-25513 A 20031107				
WO 2004-EP12058 W 20041026				

OTHER SOURCE(S): CASREACT 142:463900  
IT 54322-33-7, Methanetrissulfonic acid  
RL: CAT (Catalyst use); USES (Uses)  
(acylation process for preparation of 2,3,5-trimethylhydroquinone diacylates in presence of methanetrissulfonic acid catalyst)  
RN 54322-33-7 CAPLUS  
CN Methanetrissulfonic acid (7CI, 9CI) (CA INDEX NAME)



AB 2,3,5-Trimethyl-1,4-hydroquinone diacylates (e.g., 2,3,5-trimethyl-1,4-benzoquinone diacetate), useful as intermediates in the preparation of  $\alpha$ -tocopherol (no data), are obtained in high yield and selectivity by reacting 2,3,5-trimethyl-1,4-benzoquinone with an acylating agent (e.g., acetic anhydride) in the presence of catalytic quantities of methanetrissulfonic acid.

REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE

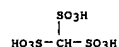
FORMAT

L23 ANSWER 1 OF 30 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)

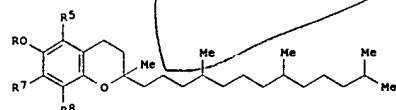
L23 ANSWER 2 OF 30 CAPLUS COPYRIGHT 2006 ACS on STN  
ACCESSION NUMBER: 2004:965239 CAPLUS  
DOCUMENT NUMBER: 141:395687  
TITLE: Process for the manufacture of tocyl and tocopheryl acylates  
INVENTOR(S): Bonrath, Werner; Haas, Alois; Hoppmann, Simone; Netscher, Thomas; Pauling, Horst  
PATENT ASSIGNEE(S): DSM IP Assets B.V., Neth.  
SOURCE: PCT Int. Appl., 15 pp.  
CODEN: PIXXD2  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004096790	A1	20041111	WO 2004-EP4144	20040419
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
PRIORITY APPLN. INFO.: EP 2003-9522 A 20030428				

OTHER SOURCE(S): CASREACT 141:395687; MARPAT 141:395687  
IT 54322-33-7, Methanetrissulfonic acid  
RL: CAT (Catalyst use); USES (Uses)  
(process for manufacture of tocyl and tocopherol acylates using perfluoroalkylsulfonfyl catalysts)  
RN 54322-33-7 CAPLUS  
CN Methanetrissulfonic acid (7CI, 9CI) (CA INDEX NAME)



GI



AB A process for the manufacture of tocyl acylate I (R = acyl; R<sup>1</sup> = R<sup>2</sup> = R<sup>3</sup> = H)

L23 ANSWER 2 OF 30 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)  
or a tocopheryl acylate I [R = acyl; R<sup>5</sup> = R<sup>7</sup> = R<sup>8</sup> = Me, R<sup>6</sup> = H, R<sup>7</sup> = R<sup>8</sup> = Me, etc.] comprised reacting a corresponding tocyl or tocopherol with an acylating agent in the presence of a catalyst of the general formula HCR<sup>1</sup>R<sup>2</sup>R<sup>3</sup> (wherein R<sup>1</sup>, R<sup>2</sup> and R<sup>3</sup> each signify the sulfo group, or R<sup>1</sup>, R<sup>2</sup> and R<sup>3</sup> each signify a perfluoroalkylsulfonfyl group whereby at least two of R<sup>1</sup>, R<sup>2</sup> and R<sup>3</sup> are identical such perfluoroalkyl-sulfonfyl groups, or R<sup>1</sup> signifies the pentafluorophenyl-sulfonfyl group and R<sup>2</sup> and R<sup>3</sup> each signify an identical perfluoroalkylsulfonfyl group). The main com. form of vitamin E, being (all-rac)- $\alpha$ -tocopheryl acetate I (R = acetyl; R<sup>5</sup> = R<sup>7</sup> = R<sup>8</sup> = Me), can be manufd. by acylation of (all-rac)- $\alpha$ -tocopherol according to this process.

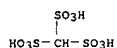
REFERENCE COUNT: 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE

FORMAT

L23 ANSWER 3 OF 30 CAPLUS COPYRIGHT 2006 ACS ON STN  
ACCESSION NUMBER: 2004:823008 CAPLUS  
DOCUMENT NUMBER: 141:334863  
TITLE: Crosslinked polyoxyalkylene-polysiloxanes for use as nonaqueous salt-type electrolytes for lithium secondary batteries  
INVENTOR(S): Barrandon, Georges; George, Catherine; Vergelati, Carol; Giraud, Yves  
PATENT ASSIGNEE(S): Rhodia Chimie, Fr.  
SOURCE: Fr. Demande, 25 pp.  
CODEN: FRXXBL  
DOCUMENT TYPE: Patent  
LANGUAGE: French  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
FR 2853321	A1	20041008	FR 2003-4153	20030403
FR 2853321	B1	20050506		
WO 2004090037	A1	20041021	WO 2004-FR708	20040323
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GR, GU, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW			
RW:	BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			
EP 1608705	A1	20051228	EP 2004-742318	20040323
R:	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, PL, SK			
CN 1788054	A	20060614	CN 2004-80013072	20040323
PRIORITY APPLN. INFO.:			FR 2003-4153	A 20030403
			WO 2004-FR708	W 20040323

OTHER SOURCE(S): MARPAT 141:334863  
IT 54322-33-7DP, Methanetrissulfonic acid, derivs., salts  
RL: DEV (Device component use); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (battery electrolytes containing; crosslinked polyoxyalkylene-polysiloxanes for use as nonaq. salt-type electrolytes for lithium secondary batteries)  
RN 54322-33-7 CAPLUS  
CN Methanetrissulfonic acid (7CI, 9CI) (CA INDEX NAME)

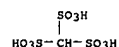


AB Crosslinked polymeric electrolytes for lithium secondary batteries consist of: (1) a first poly(hydrogen organic siloxane) with  $\geq 2$  Si-H bonds per mol., (2) a second polysiloxane containing  $\geq 2$  Si-OH bonds per mol., (3)

L23 ANSWER 4 OF 30 CAPLUS COPYRIGHT 2006 ACS ON STN  
ACCESSION NUMBER: 2004:823007 CAPLUS  
DOCUMENT NUMBER: 141:334862  
TITLE: Photochemical crosslinked epoxy-polyoxyalkylene-polysiloxanes for use as nonaqueous salt-type electrolytes for lithium secondary batteries  
INVENTOR(S): Gambut, Lucile; Vergelati, Carol; Sanchez, Jean Yves;  
PATENT ASSIGNEE(S): Alloin, Fannie  
SOURCE: Rhodia Chimie, Fr.; Rhone Poulenc Chimie  
Fr. Demande, 30 pp.  
CODEN: FRXXBL  
DOCUMENT TYPE: Patent  
LANGUAGE: French  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
FR 2853320	A1	20041008	FR 2003-4150	20030403
FR 2853320	B1	20050506		
WO 2004091033	A2	20041021	WO 2004-FR707	20040323
WO 2004091033	A3	20050714		
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GR, GU, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW			
RW:	BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			
EP 1609205	A2	20051228	EP 2004-742317	20040323
R:	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, PL, SK			
CN 1784806	A	20060607	CN 2004-80012563	20040323
PRIORITY APPLN. INFO.:			FR 2003-4150	A 20030403
			WO 2004-FR707	W 20040323

OTHER SOURCE(S): MARPAT 141:334862  
IT 54322-33-7DP, Methanetrissulfonic acid, derivs., salts  
RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (battery electrolytes containing; photochem. crosslinked epoxy-polyoxyalkylene-polysiloxanes for use as nonaq. salt-type electrolytes for lithium secondary batteries)  
RN 54322-33-7 CAPLUS  
CN Methanetrissulfonic acid (7CI, 9CI) (CA INDEX NAME)



AB Crosslinked polymeric electrolytes for lithium secondary batteries are prepared from a polyorganosiloxane grafted with polyoxyalkylene and epoxy functions, followed by radiochem. or photochem. (e.g., UV-induced)

L23 ANSWER 3 OF 30 CAPLUS COPYRIGHT 2006 ACS ON STN (Continued)  
a dehydrogenation-condensation catalyst, and (4)  $\geq 1$  salt electrolyte. The polyoxyalkylene ether functions are derived from polyoxyethylene, polyoxypropylene, or their mono-Me ethers. The dehydrogenation-condensation catalysts are typically metal complexes based on Pt, B, Rh, Pd, Sn, or Ir, preferably Karstedt (hydrosilylation) catalysts of formula IrCl(CO)(PPh<sub>3</sub>)<sub>2</sub>. Suitable salt electrolytes include LiClO<sub>4</sub>, LiBF<sub>4</sub>, LiAsF<sub>6</sub>, CF<sub>3</sub>SO<sub>3</sub>Li, LiN(CF<sub>3</sub>SO<sub>2</sub>)<sub>2</sub>, and LiN(C<sub>2</sub>F<sub>5</sub>SO<sub>2</sub>)<sub>2</sub> in a non-aq. electrolyte solvent, as well as other cations (e.g., transition metal cations, selected from Mn, Fe, Co, Ni, Cu, Zn, Ca, and Ag). Addnl. ions include ammonium, amidinium, guanidinium cations, halides, ClO<sub>4</sub><sup>-</sup>, SCN<sup>-</sup>, BF<sub>4</sub><sup>-</sup>, NO<sub>3</sub><sup>-</sup>, AsF<sub>6</sub><sup>-</sup>, PF<sub>6</sub><sup>-</sup>, RSO<sub>3</sub><sup>-</sup> (R = stearyl, CF<sub>3</sub>, octyl, dodecylphenyl, and C1-6-perfluoroalkyl and -perfluoroaryl), (R<sub>5</sub>SO<sub>2</sub>)<sub>2</sub>N<sup>-</sup>, and (R<sub>4</sub>SO<sub>2</sub>)(R<sub>5</sub>SO<sub>2</sub>)(R<sub>6</sub>SO<sub>2</sub>)C<sup>-</sup> (R<sub>4</sub>-6 = C1-6-perfluoroalkyl and -perfluoroaryl).

REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE

FORMAT

L23 ANSWER 4 OF 30 CAPLUS COPYRIGHT 2006 ACS ON STN (Continued)  
crosslinking in the presence of a photosensitizer. The crosslinked epoxy-polyoxyalkylene-polysiloxanes have the general formula R<sub>1</sub>xR<sub>2</sub>YR<sub>3</sub>SiO<sub>4</sub>(4-x-z)/2, in which R1-3 are C1-12-alkyl, C5-10-cycloalkyl, C6-18-aryl, aralkyl, or -OR<sub>4</sub> (R<sub>4</sub> = H or C1-15-alkyl; and x + y + z = 1-3).  
The product polysiloxanes (typically prep. from Si-H bond-contg. polysiloxanes by hydrosilylation grafting with allyl-terminated polyoxyalkylenes and epoxides) are then combined with org. salts to form the battery electrolytes. Suitable salt electrolytes include LiClO<sub>4</sub>, LiBF<sub>4</sub>, LiAsF<sub>6</sub>, CF<sub>3</sub>SO<sub>3</sub>Li, LiN(CF<sub>3</sub>SO<sub>2</sub>)<sub>2</sub>, and LiN(C<sub>2</sub>F<sub>5</sub>SO<sub>2</sub>)<sub>2</sub>, other cations (e.g., transition metal cations); ammonium, amidinium, and guanidinium salts; org. sulfonates, imidodisulfonates, methanetrissulfonates, organoboron complex salts, ferricenium salts, and other onium salts (esp. iodonium and sulfonium compds.).

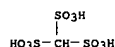
REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE

FORMAT

L23 ANSWER 5 OF 30 CAPLUS COPYRIGHT 2006 ACS on STN  
ACCESSION NUMBER: 2004:453200 CAPLUS  
DOCUMENT NUMBER: 141:23750  
TITLE: Manufacture of  $\alpha$ -tocopherol from the reaction of trimethylhydroquinone with isophytol or phytol in the presence of methane trisulfonate  
INVENTOR(S): Bonrath, Werner; Hoppmann, Simone; Haas, Alois; Netscher, Thomas; Pauling, Horst  
PATENT ASSIGNEE(S): DSM IP Assets B.V., Neth.  
SOURCE: PCT Int. Appl., 13 pp.  
CODEN: PIXXD2  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

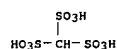
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004046127	A1	20040603	WO 2003-EP10837	20030930
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
AU 2003270295	A1	20040615	AU 2003-270295	20030930
CN 1701065	A	20051123	CN 2003-825314	20030930
US 2006020139	A1	20060126	US 2005-535603	20050519
PRIORITY APPLN. INFO.:			EP 2002-25990	A 20021121
			WO 2003-EP10837	W 20030930

OTHER SOURCE(S): CASREACT 141:23750  
IT 54322-33-7, Methanetrissulfonic acid  
RL: CAT (Catalyst use); USES (Uses)  
(manufacture of  $\alpha$ -tocopherol from the reaction of trimethylhydroquinone with isophytol or phytol in the presence of methane trisulfonate)  
RN 54322-33-7 CAPLUS  
CN Methanetrissulfonic acid (7CI, 9CI) (CA INDEX NAME)



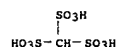
AB (all-rac)- $\alpha$ -tocopherol is prepared by the acid-catalyzed reaction of trimethylhydroquinone with isophytol or phytol in the presence of methane trisulfonate as the catalyst in an organic solvent.

L23 ANSWER 6 OF 30 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)



● 3/2 Ba

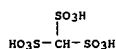
RN 187610-57-7 CAPLUS  
CN Methanetrissulfonic acid, triisilver(I+) salt (9CI) (CA INDEX NAME)



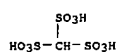
● 3 Ag(II)

AB The acidity of alkanepolysulfonic acids was measured using the correlation between the 29Si-NMR shift of the corresponding Me3Si ester of an acid and the pK<sub>a</sub> of the acid. The alkanepolysulfonates RCH(SO<sub>3</sub>SiMe<sub>3</sub>)<sub>2</sub>, R<sub>2</sub>C(SO<sub>3</sub>SiMe<sub>3</sub>)<sub>2</sub>, RC(SO<sub>3</sub>SiMe<sub>3</sub>)<sub>3</sub>, and Me<sub>3</sub>SiO<sub>3</sub>Si(CR<sub>12</sub>)<sub>n</sub>SO<sub>3</sub>SiMe<sub>3</sub> (R = H, F, Cl, Br, I; R<sub>1</sub> = H, F; n = 1-5) were prepared and studied.

L23 ANSWER 6 OF 30 CAPLUS COPYRIGHT 2006 ACS on STN  
ACCESSION NUMBER: 1997:69364 CAPLUS  
DOCUMENT NUMBER: 126:211808  
TITLE: Investigations on the acid-strength of alkanepolysulfonic acids  
AUTHOR(S): Jueschke, Ralf; Sartori, Peter  
CORPORATE SOURCE: Fachbereich 6 Anorganische Chem., Gerhard-Mercator Univ., Duisburg, D-47046, Germany  
Zeitschrift fuer Naturforschung, B: Chemical Sciences (1996), 51(12), 1691-1700  
CODEN: ZNBSEN; ISSN: 0932-0776  
PUBLISHER: Verlag der Zeitschrift fuer Naturforschung  
DOCUMENT TYPE: Journal  
LANGUAGE: German  
IT 54322-33-7, Methanetrissulfonic acid  
RL: PRP (Properties)  
(preparation of silyl alkanepolysulfonates and estimation of acidity  
by correlation with 29Si-NMR shift)  
RN 54322-33-7 CAPLUS  
CN Methanetrissulfonic acid (7CI, 9CI) (CA INDEX NAME)



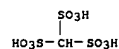
IT 55110-91-3  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(preparation of silyl alkanepolysulfonates and estimation of acidity  
by correlation with 29Si-NMR shift)  
RN 55110-91-3 CAPLUS  
CN Methanetrissulfonic acid, tripotassium salt (3CI, 9CI) (CA INDEX NAME)



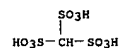
● 3 K

IT 75533-77-6P 187610-57-7P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(preparation of silyl alkanepolysulfonates and estimation of acidity  
by correlation with 29Si-NMR shift)  
RN 75533-77-6 CAPLUS  
CN Methanetrissulfonic acid, barium salt (2:3) (9CI) (CA INDEX NAME)

L23 ANSWER 7 OF 30 CAPLUS COPYRIGHT 2006 ACS on STN  
ACCESSION NUMBER: 1994:630311 CAPLUS  
DOCUMENT NUMBER: 121:230311  
TITLE: Improvement of the synthesis of the tripotassium methanetrissulfonate monohydrate  
AUTHOR(S): Sartori, Peter; Jueschke, Ralf  
CORPORATE SOURCE: Fachbereich 6 Anorg. Chem., Univ.-CH, Duisburg, Germany  
SOURCE: Journal fuer Praktische Chemie/Chemiker-Zeitung (1994), 336(4), 373-4  
CODEN: JPCCEM; ISSN: 0941-1216  
DOCUMENT TYPE: Journal  
LANGUAGE: German  
OTHER SOURCE(S): CASREACT 121:230311  
IT 54322-33-7, Methanetrissulfonic acid  
RL: FMU (Formation, unclassified); RCT (Reactant); FORM (Formation, nonpreparative); RACT (Reactant or reagent)  
(improvement of the synthesis of the tripotassium methanetrissulfonate monohydrate)  
RN 54322-33-7 CAPLUS  
CN Methanetrissulfonic acid (7CI, 9CI) (CA INDEX NAME)



IT 73224-87-0P  
RL: SPN (Synthetic preparation); PREP (Preparation)  
(improvement of the synthesis of the tripotassium methanetrissulfonate monohydrate)  
RN 73224-87-0 CAPLUS  
CN Methanetrissulfonic acid, tripotassium salt, monohydrate (9CI) (CA INDEX NAME)

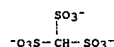


● 3 K

● H<sub>2</sub>O

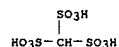
AB The Bagnall-Backer method for the preparation of the title compound [ via decarboxylation of acetanilide in SO<sub>3</sub>/H<sub>2</sub>SO<sub>4</sub> to give (HO<sub>3</sub>S)<sub>2</sub>C<sub>6</sub>H<sub>3</sub>NH<sub>2</sub> and HC(SO<sub>3</sub>H)<sub>3</sub> (I) then CaO and K<sub>2</sub>CO<sub>3</sub> to give HC(SO<sub>3</sub>K)<sub>3</sub>·H<sub>2</sub>O (II)] is improved by the decarboxylation of acetone in SO<sub>3</sub>/H<sub>2</sub>SO<sub>4</sub> to give I which with KOH gives 49% II.

L23 ANSWER 8 OF 30 CAPLUS COPYRIGHT 2006 ACS on STN  
ACCESSION NUMBER: 1989:573247 CAPLUS  
DOCUMENT NUMBER: 111:173247  
TITLE: The duodecet rule. Part 2. C-H hydrogen bonding by sulfonyl compounds  
AUTHOR(S): Robinson, E. A.  
CORPORATE SOURCE: Erindale Coll., Univ. Toronto, Mississauga, ON, L5L 1C6, Can.  
SOURCE: THEOCHEM (1989), 55, 29-41  
CODEN: THEODJ; ISSN: 0166-1280  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
IT 123177-61-7  
RL: PRP (Properties)  
(total bond orders at sulfur in)  
RN 123177-61-7 CAPLUS  
CN Methanetrissulfonic acid, ion(3-) (9CI) (CA INDEX NAME)



AB By combining linear relationships between log k and log r, bond order (n) and force const. (k) where k is the CS stretching force constant of a bond of length r, a correlation is established between CS bond lengths and simple valence-bond bond orders. For a variety of S(VI) species with bonds to electroneg. ligands, including Me groups, this is used to demonstrate that the total bond order at S in these species is six, consistent with a duodecet rule. Apparently, S-CH<sub>3</sub> groups in compds. such as CH<sub>3</sub>SO<sub>2</sub>F, CH<sub>3</sub>SO<sub>2</sub>OH, Me<sub>2</sub>SO<sub>2</sub>, and related species compete with other ligands for the delocalization of electron pairs into the valence shell of the central sulfur atom, in this case through hyperconjugation. This accounts for the enhanced acidities of hydrogen atoms bonded to α-carbon atoms in such compds., and their ability to form hydrogen bonds. Evidence for hydrogen bonding in CH<sub>3</sub>SO<sub>2</sub>F, CH<sub>3</sub>SO<sub>2</sub>Cl, and (CH<sub>3</sub>)<sub>2</sub>SO<sub>2</sub>, and in CH<sub>3</sub>SO<sub>2</sub>OH (via both S-OH and S-CH<sub>3</sub>), is discussed. The use of C-H bond lengths and stretching force const. as a possible diagnostic tool to select mols. capable of CH hydrogen bonding is also discussed.

L23 ANSWER 10 OF 30 CAPLUS COPYRIGHT 2006 ACS on STN  
ACCESSION NUMBER: 1986:431749 CAPLUS  
DOCUMENT NUMBER: 105:31749  
TITLE: The electrochemistry of a dimeric and two monomeric cis-trioxomolybdenum(VI) complexes containing cyclic triamine ligands in protic and aprotic media: model compounds for the active site in formate dehydrogenase  
AUTHOR(S): Herrmann, Willy; Wieghardt, Karl  
CORPORATE SOURCE: Ruhr-Univ., Bochum, D-4630, Fed. Rep. Ger.  
SOURCE: Polyhedron (1986), 5(1-2), 513-20  
CODEN: PLYHDE; ISSN: 0277-5387  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
IT 54322-33-7  
RL: PRP (Properties)  
(electrochem. reduction of molybdenum trioxotriazacyclononane or molybdenum trioxotrimethyltriazacyclononane nuclear and dinuclear complexes on mercury in)  
RN 54322-33-7 CAPLUS  
CN Methanetrissulfonic acid (7CI, 9CI) (CA INDEX NAME)

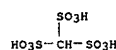


AB The electrochem. of cis-MoO<sub>3</sub>L (I), (L = N,N',N''-trimethyl-1,4,7-triazacyclononane) or cis-MoO<sub>3</sub>L' (II), (L' = 1,4,7-triazacyclononane) was in protic (CH<sub>3</sub>SO<sub>3</sub>H) and aprotic media (DMF) by cyclic voltammetry at the hanging Hg drop (HMD) electrode. I and II are quasi-reversibly reduced by a 2e-, 4H+ step in acidic solns. to give monomeric [LMo(IV)O(OH<sub>2</sub>)<sub>2</sub>]<sup>2+</sup> and [L'Mo(OH<sub>2</sub>)<sub>2</sub>]<sup>2+</sup>, which in the case of I is further reduced to a monomeric Mo(III) species which then undergoes a reversible chemical reaction (dimerization). In contrast, reduced II undergoes chemical reactions (dimerization or trimerization of [L'Mo(OH<sub>2</sub>)<sub>2</sub>]<sup>2+</sup> or comproportionation reactions) due to the fact that the unmetallated cyclic amine in II is sterically less demanding. I and II are redox-inactive in DMF (+1.0 to -1.7 V vs. Ag-AgCl at a Pt or a glassy C electrode). Dimeric [L<sub>2</sub>Mo<sub>2</sub>O<sub>5</sub>](PF<sub>6</sub>)<sub>2</sub>, (III) is reversibly reduced to a Mo(V) dimer (2e-, 2H+ process) and, finally, to a Mo(III)<sub>2</sub> dimer (4e-, 4H+) in 0.1M CH<sub>3</sub>SO<sub>3</sub>H at an HMD electrode, contrasting with the behavior in aprotic medium (DMF), Pt electrode), where 2 reversible 1-electron transfer processes generating the blue, mixed-valence species Mo(VI)/(V) and an Mo(V)<sub>2</sub> dimer were observed

L23 ANSWER 9 OF 30 CAPLUS COPYRIGHT 2006 ACS on STN  
ACCESSION NUMBER: 1989:553222 CAPLUS  
DOCUMENT NUMBER: 111:153222  
TITLE: Process for the preparation of alkyl 3-alkoxypropionates  
INVENTOR(S): Jones, Glenn C.; Nottingham, William D.; Reynolds, Peter W.  
PATENT ASSIGNEE(S): Eastman Kodak Co., USA  
SOURCE: U.S., 4 pp.  
CODEN: USXXAM  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 4827021	A	19890502	US 1988-164663	19880307
CA 1326242	A1	19940118	CA 1989-591956	19890224
WO 8908636	A1	19890921	WO 1989-US763	19890227
W: AU, JP, KR				
RW: AT, BE, CH, DE, FR, GB, IT, LU, NL, SE				
AU 8933504	A1	19891005	AU 1989-33504	19890227
AU 609288	B2	19910426		
EP 403528	A1	19901227	EP 1989-903301	19890227
EP 403528	B1	19930210		
R: AT, BE, CH, DE, FR, GB, IT, LI, LU, NL, SE				
JP 03503282	T2	19910725	JP 1989-503132	19890227
JP 2738967	B2	19980408		
AT 95603	E	19930215	AT 1989-903301	19890227
KR 9700138	B1	19970104	KR 1989-72047	19891106
PRIORITY APPLN. INFO.:			US 1988-164663	A 19880307
			EP 1989-903301	A 19890227
			WO 1989-US763	A 19890227

OTHER SOURCE(S): MARPAT 111:153222  
IT 54322-33-7, Methanetrissulfonic acid  
RL: CAT (Catalyst use): USES (Uses)  
(catalyst, for addition of alkoxy methane with ketene)  
RN 54322-33-7 CAPLUS  
CN Methanetrissulfonic acid (7CI, 9CI) (CA INDEX NAME)

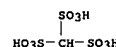


AB R1OCH2CR3R4CO2R2 (I; R1, R2 = C1-8 alkyl; R3, R4 = H, alkyl, aryl), useful as solvents in the formation of coating compns., are prepared by addition of R1OCH2OR2 with R3R4C:CO in the presence of CH<sub>2</sub>(SO<sub>3</sub>H)<sub>2</sub>, CH(SO<sub>3</sub>H)<sub>3</sub>, or mixture thereof. A mixture of 23.0 g CH<sub>2</sub>(OMe)<sub>2</sub>, 0.071 CH<sub>2</sub>(SO<sub>3</sub>H)<sub>2</sub>, and 0.30 and CH<sub>2</sub>:CO was stirred at 25-40° under N to give 24.9 g I (R1 = R2 = Me, R3 = R4 = H). Similarly prepared was I (R1 = R2 = Et, R3 = R4 = H).

L23 ANSWER 11 OF 30 CAPLUS COPYRIGHT 2006 ACS on STN  
ACCESSION NUMBER: 1985:184717 CAPLUS  
DOCUMENT NUMBER: 102:184717  
TITLE: Alkoxylation of alcohols and phenols  
INVENTOR(S): Moody, Keith  
PATENT ASSIGNEE(S): ICI Australia Ltd., Australia  
SOURCE: Pat. Specif. (Aust.), 15 pp.  
CODEN: ALXXAP  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
AU 538363	B2	19840809	AU 1981-71460	19800613
AU 8171460	A1	19811217		
PRIORITY APPLN. INFO.:			AU 1981-71460	19800613

IT 54322-33-7  
RL: CAT (Catalyst use): USES (Uses)  
(catalyst, for alkoxylation of alcs. and phenols)  
RN 54322-33-7 CAPLUS  
CN Methanetrissulfonic acid (7CI, 9CI) (CA INDEX NAME)



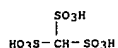
AB Alcs. and phenols were alkoxyated with alkylene oxides in the presence of catalysts consisting of organic sulfonic acids or their salts. The sulfonic acids chosen have an acid strength greater than that of methanesulfonic acid; the cations are chosen from first row transition metals, Be, Mg, Ca, B, Al, Sn, or Zr. Thus, BuOH was ethoxylated with ethylene oxide (6:1 mol ratio) at 160° in the presence of Zn methanesulfonate to give 93.8% ethylene glycol monobutyl ether and small amts. of diethylene glycol monobutyl ether (20.9:1 mol ratio). Other catalyst used were Zn benzenesulfonate or trifluoromethanesulfonate and Al methanedisulfonate.

L23 ANSWER 12 OF 30 CAPLUS COPYRIGHT 2006 ACS ON STN  
ACCESSION NUMBER: 1983:523106 CAPLUS  
DOCUMENT NUMBER: 99:123106  
TITLE: N-phenylcarbamate ester oligomers  
PATENT ASSIGNEE(S): Asahi Chemical Industry Co., Ltd., Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 6 pp.  
CODEN: JQXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 5805852	A2	19830523	JP 1981-183739	19811118
JP 62008430	B4	19870223		

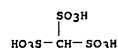
PRIORITY APPLN. INFO.: JP 1981-183739 19811118

IT 54322-33-7  
RL: CAT (Catalyst use); USES (Uses)  
(catalysts, for oligomerization of phenylcarbamate esters with methylene donors)  
RN 54322-33-7 CAPLUS  
CN Methanetrissulfonic acid (7CI, 9CI) (CA INDEX NAME)



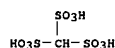
AB N-Phenylcarbamate esters are oligomerized with methylene donors in the presence of solid-supported polysulfonic acids. Thus, 10g kieselguhr and 3.5g CH<sub>2</sub>(SO<sub>3</sub>H)<sub>2</sub> (I) [503-40-2] in 10 mL H<sub>2</sub>O was dried and baked 6 h at 200° to give catalyst containing 14% I. A mixture of the above catalyst 3, Et N-phenylcarbamate (II) 8.25, and dimethoxymethane 1g in 40 mL sulfolane was heated 1 h in an autoclave at 140° to convert 56% II to oligomers [87093-19-4] containing 73% 1,1'-methylenebis(4-ethoxycarbonylamino benzene) [10097-16-2] and 11% 1,3'-methylenebis(4-ethoxycarbonylamino benzene) [70381-86-1].

L23 ANSWER 14 OF 30 CAPLUS COPYRIGHT 2006 ACS ON STN  
ACCESSION NUMBER: 1981:174556 CAPLUS  
DOCUMENT NUMBER: 94:174556  
TITLE: 2-Hydroxyacetophenone via Fries rearrangement and related reactions. A comparative applied study  
AUTHOR(S): Hocking, Martin B.  
CORPORATE SOURCE: Dep. Chem., Univ. Victoria, Victoria, BC, V8W 2Y2, Can.  
SOURCE: Journal of Chemical Technology and Biotechnology (1979-1982) (1980), 30(11), 626-41  
CODEN: JCTBDC; ISSN: 0142-0356  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
OTHER SOURCE(S): CASREACT 94:174556  
IT 54322-33-7  
RL: CAT (Catalyst use); USES (Uses)  
(catalysts, for Fries rearrangement of Ph acetate)  
RN 54322-33-7 CAPLUS  
CN Methanetrissulfonic acid (7CI, 9CI) (CA INDEX NAME)



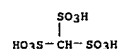
AB PhOAc was prepared directly from PhOH and AcOH in the presence of H<sub>2</sub>SO<sub>4</sub>; thermal rearrangement of PhOAc was studied in the presence of methanesulfonic and -trisulfonic acids, p-MeC<sub>6</sub>H<sub>4</sub>SO<sub>3</sub>H, and sulfonated cation exchange resin. Catalysis by H<sub>2</sub>SO<sub>4</sub>, H<sub>2</sub>SO<sub>4</sub>.H<sub>2</sub>O, H<sub>3</sub>PO<sub>4</sub>, NaHSO<sub>4</sub>, and CaCl<sub>2</sub> was also studied. The catalysts gave o- and p-HOC<sub>6</sub>H<sub>4</sub>Ac, with larger  
amts. of the ortho derivative at higher temps. The rates, product ratios, and yields of these processes were compared. AlCl<sub>3</sub>, ZnCl<sub>2</sub>, and BF<sub>3</sub> all gave faster reactions than the proton acids, and higher ortho-para ratios, especially with BF<sub>3</sub> at low temps. The results obtained with the proton acids and other compds. and with the Lewis acids were compared. The object of the studies was to provide a com. route to pyrocatechol.

L23 ANSWER 13 OF 30 CAPLUS COPYRIGHT 2006 ACS ON STN  
ACCESSION NUMBER: 1983:504727 CAPLUS  
DOCUMENT NUMBER: 99:104727  
TITLE: Methanetrissulfonic acid derivatives  
AUTHOR(S): Yagupol'skii, Yu. L.; Savina, T. I.  
CORPORATE SOURCE: Inst. Org. Khim., Kiev, USSR  
SOURCE: Zhurnal Organicheskoi Khimii (1983), 19(1), 79-82  
CODEN: ZORKAE; ISSN: 0514-7492  
DOCUMENT TYPE: Journal  
LANGUAGE: Russian  
OTHER SOURCE(S): CASREACT 99:104727  
IT 54322-33-7  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(reaction of, with sulfur tetrafluoride)  
RN 54322-33-7 CAPLUS  
CN Methanetrissulfonic acid (7CI, 9CI) (CA INDEX NAME)

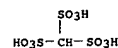


AB CH(SO<sub>3</sub>H)<sub>3</sub> and SF<sub>4</sub> gave CH(SO<sub>2</sub>F)<sub>3</sub>, which with Br, iodine, or Me<sub>3</sub>SiCl gave the corresponding RC(SO<sub>2</sub>F)<sub>3</sub>. CH<sub>2</sub>(SO<sub>2</sub>F)<sub>2</sub> and Ag<sub>2</sub>O gave AgCH(SO<sub>2</sub>F)<sub>2</sub>, which with MeI or C<sub>6</sub>F<sub>5</sub>SCl gave, resp., MeCH(SO<sub>2</sub>F)<sub>2</sub> and C<sub>6</sub>F<sub>5</sub>SCH(SO<sub>2</sub>F)<sub>2</sub>. 4-MeC<sub>6</sub>H<sub>4</sub>SO<sub>3</sub>F and trifluoromorpholiniosulfur gave 4-MeC<sub>6</sub>H<sub>4</sub>SO<sub>2</sub>F.

L23 ANSWER 15 OF 30 CAPLUS COPYRIGHT 2006 ACS ON STN  
ACCESSION NUMBER: 1981:139146 CAPLUS  
DOCUMENT NUMBER: 94:139146  
TITLE: Tris(fluorosulfonyl)methane, HC(SO<sub>2</sub>F)<sub>3</sub>  
AUTHOR(S): Kloeter, Gerhard; Pritzkow, Hans; Seppelt, Konrad  
CORPORATE SOURCE: Anorg. Chem. Inst., Univ. Heidelberg, Heidelberg, D-6900/1, Fed. Rep. Ger.  
SOURCE: Angewandte Chemie (1980), 92(11), 954-5  
CODEN: ANCEAD; ISSN: 0044-8249  
DOCUMENT TYPE: Journal  
LANGUAGE: German  
IT 54322-33-7P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(preparation and reaction of, with sulfur tetrafluoride)  
RN 54322-33-7 CAPLUS  
CN Methanetrissulfonic acid (7CI, 9CI) (CA INDEX NAME)

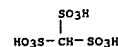


IT 75533-77-6P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(preparation and reaction of, with sulfuric acid)  
RN 75533-77-6 CAPLUS  
CN Methanetrissulfonic acid, barium salt (2:3) (9CI) (CA INDEX NAME)



● 3/2 Ba

IT 75533-76-5  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(reaction of, with barium ion)  
RN 75533-76-5 CAPLUS  
CN Methanetrissulfonic acid, monopotassium salt (9CI) (CA INDEX NAME)

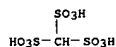


● K

AB Successive treatment of HC(SO<sub>3</sub>K)<sub>3</sub> with Ba<sup>2+</sup>, H<sub>2</sub>SO<sub>4</sub>, and SF<sub>4</sub> gave, via HC(SO<sub>3</sub>Ba)<sub>2</sub> and HC(SO<sub>3</sub>H)<sub>3</sub>, HC(SO<sub>2</sub>F)<sub>3</sub> (I), which is a monobasic acid with strength falling between those of HSO<sub>3</sub>F and HNO<sub>3</sub>. Treatment of I with bases gave the salts MC(SO<sub>2</sub>F)<sub>3</sub> (M = K, Rb, Cs and Ag); crystal structures

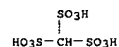
L23 ANSWER 15 OF 30 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)  
of the K and Rb salts were detd. Treatment of AgC(SO<sub>2</sub>F)<sub>3</sub> with MeI or X<sub>2</sub>  
gave, resp., MeC(SO<sub>2</sub>F)<sub>3</sub> and XC(SO<sub>2</sub>F)<sub>3</sub> (X = Cl, Br, I). FC(SO<sub>2</sub>F)<sub>3</sub> was  
prepd. by fluorinating I with XeF<sub>2</sub>.

L23 ANSWER 16 OF 30 CAPLUS COPYRIGHT 2006 ACS on STN  
ACCESSION NUMBER: 1981:68557 CAPLUS  
DOCUMENT NUMBER: 94:68557  
TITLE: New electrolytes for direct methane fuel cells  
AUTHOR(S): Brummer, S. B.; Foos, J.; McHardy, J.; McVeigh, J.;  
Toland, D.; Turner, M.  
CORPORATE SOURCE: EIC Corp., Newton, MA, USA  
SOURCE: Report (1979), DOE/ET/11321-T1, 74 pp. Avail.: NTIS  
From: Energy Res. Abstr. 1980, 5(10), Abstr. No.  
15977  
DOCUMENT TYPE: Report  
LANGUAGE: English  
IT 54322-33-7  
RL: USES (Uses)  
(electrolytes, for direct-methane fuel cells, development and testing  
of)  
RN 54322-33-7 CAPLUS  
CN Methanetrissulfonic acid (7CI, 9CI) (CA INDEX NAME)



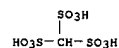
AB A program aimed at developing a fuel-cell electrolyte for the direct  
oxidation of CH<sub>4</sub> and/or impure H fuels is described. Of interest are  
di- and  
tribasic methanesulfonic acids CX<sub>2</sub>(SO<sub>3</sub>H)<sub>2</sub> and CX(SO<sub>3</sub>H)<sub>3</sub> where X is H, F,  
or Cl. Synthetic routes to CH<sub>2</sub>(SO<sub>3</sub>H)<sub>2</sub> [503-40-2], CH(SO<sub>3</sub>H)<sub>3</sub> [  
54322-33-7], CCl<sub>2</sub>(SO<sub>3</sub>H)<sub>2</sub> [76371-35-2], and CCl(SO<sub>3</sub>H)<sub>3</sub> [  
76371-36-3] were identified and optimized. The diphenyl ester of  
CF<sub>2</sub>(SO<sub>3</sub>H)<sub>2</sub> was prepared and various approaches to CF(SO<sub>3</sub>H)<sub>3</sub> [76371-37-4]  
were investigated. In parallel with the synthetic program, apparatus was  
designed and fabricated for the testing of the electrolytes under  
fuel-cell conditions. A new PTFE test cell was developed for testing  
small amts. of electrolyte. Electrodes with low Pt loading were  
developed  
for use in electrolyte evaluation. Optimum performance with H<sub>3</sub>PO<sub>4</sub> was  
achieved using 1 mg Pt/cm<sup>2</sup> and 1 mg TFE 30/cm<sup>2</sup> deposited on TFE tape,  
supported on a Au-plated Ta screen, and sintered. Preliminary half-cell  
tests using CH<sub>2</sub>(SO<sub>3</sub>H)<sub>2</sub> and CH(SO<sub>3</sub>H)<sub>3</sub> indicated that these acids are  
insufficiently stable for use as fuel-cell electrolytes. However, tests  
using CCl<sub>2</sub>(SO<sub>3</sub>H)<sub>2</sub> and CCl(SO<sub>3</sub>H)<sub>3</sub> were encouraging, yielding H oxidation  
rates  
equal to or better than those using H<sub>3</sub>PO<sub>4</sub>. Stability tests were  
conducted  
by heating a sample of each acid at 130° for 30 days under N, O,  
and H. At the end of the test, each sample was analyzed for  
decomposition. In  
no case did IR anal. indicate significant decomposition and in the case  
of the  
chloroacids, only a trace amount of free Cl<sup>-</sup> was observed. Conductivity  
measurements  
showed the aqueous acids to be of the same conductivity as aqueous  
H<sub>3</sub>PO<sub>4</sub>. The dihydrate  
of CH<sub>2</sub>(SO<sub>3</sub>H)<sub>2</sub> was more conductive than CF<sub>3</sub>SO<sub>3</sub>H.H<sub>2</sub>O [49789-04-0] but less  
conductive than 100% H<sub>3</sub>PO<sub>4</sub>.

L23 ANSWER 17 OF 30 CAPLUS COPYRIGHT 2006 ACS on STN  
ACCESSION NUMBER: 1980:145976 CAPLUS  
DOCUMENT NUMBER: 92:145976  
TITLE: Crystal structure, and the infrared and Raman  
spectra,  
of tripotassium methanetrissulfonate hydrate,  
K<sub>3</sub>[CH(SO<sub>3</sub>)<sub>3</sub>].H<sub>2</sub>O  
AUTHOR(S): Hall, John R.; Johnson, Robert A.; Kennard, Colin H.  
L.; Smith, Graham  
CORPORATE SOURCE: Dep. Chem., Univ. Queensland, Brisbane, 4067,  
Australia  
SOURCE: Journal of the Chemical Society, Dalton Transactions:  
Inorganic Chemistry (1972-1999) (1980), (1), 149-55  
CODEN: JCDTBI; ISSN: 0300-9246  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
IT 73224-78-9  
RL: PRP (Properties)  
(IR and Raman spectra of aqueous)  
RN 73224-78-9 CAPLUS  
CN Methanetrissulfonic acid, trilithium salt (9CI) (CA INDEX NAME)



● 3 Li

IT 73224-87-0  
RL: PRP (Properties)  
(crystal and mol. structure, and IR and Raman spectra of)  
RN 73224-87-0 CAPLUS  
CN Methanetrissulfonic acid, tripotassium salt, monohydrate (9CI) (CA INDEX NAME)



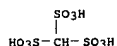
● 3 K

● H<sub>2</sub>O

AB The crystal and mol. structure of K<sub>3</sub>[CH(SO<sub>3</sub>)<sub>3</sub>].H<sub>2</sub>O was determined by  
x-ray  
diffraction as an aid in the assignment of the IR and Raman spectra. The  
structure was solved using direct methods and refined by full-matrix  
least  
squares to R 0.045 for 839 observed unique reflections. The S-C-S  
angles of

L23 ANSWER 17 OF 30 CAPLUS COPYRIGHT 2006 ACS on STN (Continued)  
.apprx.113° indicate an expansion from tetrahedral stereochem. and  
the S-C bond lengths of .apprx.1.81 Å are longer than those for  
K<sub>2</sub>[CH<sub>2</sub>(SO<sub>3</sub>)<sub>2</sub>] (1.77 Å) and Ca[CH<sub>3</sub>SO<sub>3</sub>]<sub>2</sub> (1.75 Å). The IR (4000 to  
50 cm<sup>-1</sup>) and Raman spectra of K<sub>3</sub>[CH(SO<sub>3</sub>)<sub>3</sub>].H<sub>2</sub>O and K<sub>3</sub>[CD(SO<sub>3</sub>)<sub>3</sub>].D<sub>2</sub>O were  
detd. at 77° K and interpreted in accordance with the structure,  
and with the use of the spectra of anhyd. K<sub>3</sub>[CH(SO<sub>3</sub>)<sub>3</sub>] and of aq. solns.  
of the sol. Li salts. The SO<sub>3</sub> groups show their characteristic group  
frequencies: ν<sub>sym</sub>(C-S) 762, ν<sub>asym</sub>(C-S) 820, δ<sub>sym</sub>(CS<sub>3</sub>) 170, and  
δ<sub>asym</sub>(CS<sub>3</sub>) .apprx.210 cm<sup>-1</sup>, resp. IR spectra of samples contg. the  
isotopically dil. HDO species confirm the presence of 2 types of H bond  
per H<sub>2</sub>O mol.

L23 ANSWER 18 OF 30 CAPLUS COPYRIGHT 2006 ACS ON STN  
 ACCESSION NUMBER: 1975:139193 CAPLUS  
 DOCUMENT NUMBER: 82:139193  
 TITLE: Reactions of dipotassium diazomethanesulfonate in aqueous solution  
 AUTHOR(S): Young, J. Michael  
 CORPORATE SOURCE: Dep. Pharmacol., Univ. Cambridge, Cambridge, UK  
 SOURCE: Journal of the Chemical Society, Perkin Transactions 1: Organic and Bio-Organic Chemistry (1972-1999) (1974), (22), 2541-3  
 CODEN: JCPRB4; ISSN: 0300-922X  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 OTHER SOURCE(S): CASREACT 82:139193  
 IT 55110-91-3P  
 RL: SPN (Synthetic preparation); PREP (Preparation) (preparation of)  
 RN 55110-91-3 CAPLUS  
 CN Methanetrissulfonic acid, tripotassium salt (3CI, 9CI) (CA INDEX NAME)



● 3 K

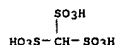
AB Decomposition of (KO3S)2CN2 (I) in H2O at 4° gave (KO3S)3CH and (KO3S)2C:NNH2, in N KOH at 70° gave (KO3S)2C:NNKSO3K, and in aqueous piperidine at 70° gave (KO3S)2CH2. I with MeOH gave (KO3S)2CHOMe.

L23 ANSWER 19 OF 30 CAPLUS COPYRIGHT 2006 ACS ON STN  
 ACCESSION NUMBER: 1975:64946 CAPLUS  
 DOCUMENT NUMBER: 82:64946  
 TITLE: Solid catalysts for heterogeneous reactions  
 INVENTOR(S): Rona, Peter  
 PATENT ASSIGNEE(S): IMI (TAMI) Institute for Research and Development  
 SOURCE: Ger. Offen., 21 pp.  
 CODEN: GWXXBX  
 DOCUMENT TYPE: Patent  
 LANGUAGE: German  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 2401958	A1	19740718	DE 1974-2401958	19740116
US 3920582	A	19751118	US 1974-430804	19740104
GB 1446964	A	19760818	GB 1974-1839	19740115
JP 50046587	A2	19750425	JP 1974-7615	19740117

PRIORITY APPLN. INFO.: IL 1973-41330 A 19730117

IT 54322-33-7  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (catalyst preparation with, for heterogeneous catalysis or organic reactions)  
 RN 54322-33-7 CAPLUS  
 CN Methanetrissulfonic acid (7CI, 9CI) (CA INDEX NAME)

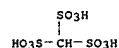


AB Catalysts for heterogeneously catalyzed reactions were prepared by impregnation of carriers with sulfonic acids. Thus, 50 g SiO2-Al2O3 pellets were treated for 30 min with 14 g benzene-1,3-disulfonic acid in H2O at 80°, dried for 6 hr at 150°, and calcined for 6 hr at 200° to give 60 g catalyst. A H2O-C2H4 mixture of mol. ratio 1:1 was passed over this catalyst at 195° to give a C2H4-C2H5OH conversion of 0.3-0.5 mole % without splitting off acid from this catalyst.

L23 ANSWER 20 OF 30 CAPLUS COPYRIGHT 2006 ACS ON STN  
 ACCESSION NUMBER: 1963:468923 CAPLUS  
 DOCUMENT NUMBER: 59:68923  
 ORIGINAL REFERENCE NO.: 59:12707d-f  
 TITLE: Alkylation of phenols  
 INVENTOR(S): McConnell, Wayne V.; Davis, Herman E.  
 PATENT ASSIGNEE(S): Eastman Kodak Co.  
 SOURCE: 2 pp.  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Unavailable  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 3082258		19630319	US 1960-28557	19600512

IT 54322-33-7, Methanetrissulfonic acid  
 (catalyst in alkylation of phenols)  
 RN 54322-33-7 CAPLUS  
 CN Methanetrissulfonic acid (7CI, 9CI) (CA INDEX NAME)

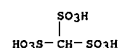


AB The preparation of 2,6-di-tert-butyl-4-methylphenol (I) from 4-methylphenol (II) and isobutylene using hydrated methanedi- or trisulfonic acid catalysis was described. I was useful as an antioxidant and stabilizer for fats and oils. Thus, 112 g. isobutylene was bubbled through a flask containing 108 g. II and 1.1 g. methanedisulfonic acid dihydrate (III) in 100 cc. benzene. In the initial stages the temperature varied from 25-40° due to the cooling effect of isobutylene refluxing in a dry ice-acetone cooled condenser. Thereafter the temperature was held at 40° for a total reaction time of 6 hrs. The supernatant liquid was decanted from the catalyst. Unreacted II (6%) and 2-tert-butyl-4-methylphenol (31% conversion) were extracted with aqueous NaOH. After removal of C6H6, I was obtained (63% conversion), m. 68-9° (50% aqueous MeOH). Under the same conditions, 5.5 g. III gave an 88% conversion to I. Only a 20% conversion resulted from use of 1,2-ethanedithiolonic acid. Benzenedisulfonic acid caused polymerization of isobutylene. When p-toluenesulfonic acid or H2SO4 was used in concentration of 5% based on the weight of II the product had poorer color and odor. White, odorless I could also be prepared in 84 and 80% conversions, resp., using 2.2 g. III and no solvent or using 1% by weight methanetrissulfonic acid trihydrate.

L23 ANSWER 21 OF 30 CAPLUS COPYRIGHT 2006 ACS ON STN  
 ACCESSION NUMBER: 1963:14557 CAPLUS  
 DOCUMENT NUMBER: 58:14557  
 ORIGINAL REFERENCE NO.: 58:2371g-h  
 TITLE: Esterification catalysts  
 INVENTOR(S): Touey, George P.; Goins, Rex H.  
 PATENT ASSIGNEE(S): Eastman Kodak Co.  
 SOURCE: 3 pp.  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Unavailable  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 3053884		19620911	US 1959-845336	19591009

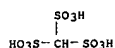
IT 54322-33-7, Methanetrissulfonic acid  
 (as catalyst for esterification)  
 RN 54322-33-7 CAPLUS  
 CN Methanetrissulfonic acid (7CI, 9CI) (CA INDEX NAME)



AB CH2(SO3H)2 and CH(SO3H)3 are superior catalysts for preparing esters by treating saturated aliphatic mono- and polyhydroxy alcs. with phenyl dicarboxylic acids or saturated aliphatic carboxylic acids and their anhydrides. A lower concentration of catalyst is required and the ester produced is nearly colorless and is heat stable. Two moles phthalic anhydride and five moles BuOH were refluxed 7 hrs. in the presence of various acid catalysts. The catalyst used, the catalyst concentration based on the phthalic anhydride, and the percent phthalic acid in the product are: CH2(SO3H)2, 0.1, 0.02; CH(SO3H)3, 0.1, 0.03; H2SO4, 0.1, 0.35; MeSO3H, 0.2, 1.6; MeC6H4SO3H, 1.0, 2.0; (CH2SO3H)2, 0.2, 0.85. Data are given which show the superiority of these two catalyst for the esterification of n-octyl alc. with adipic acid and glycerol with 2-ethylhexanoic acid.



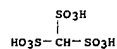
L23 ANSWER 22 OF 30 CAPLUS COPYRIGHT 2006 ACS on STN  
ACCESSION NUMBER: 1953:70596 CAPLUS  
DOCUMENT NUMBER: 47:70596  
ORIGINAL REFERENCE NO.: 47:11919f-1  
TITLE: Acid-base equilibria in glacial acetic acid  
AUTHOR(S): Smith, Thor L.; Elliott, John H.  
CORPORATE SOURCE: Hercules Powder Co., Wilmington, DE  
SOURCE: Journal of the American Chemical Society (1953), 75,  
3566-71  
CODEN: JACSAT; ISSN: 0002-7863  
DOCUMENT TYPE: Journal  
LANGUAGE: Unavailable  
IT 54322-33-7, Methanetrissulfonic acid  
(ionization in AcOH)  
RN 54322-33-7 CAPLUS  
CN Methanetrissulfonic acid (7CI, 9CI) (CA INDEX NAME)



AB Values of  $H_0$  for dilute solns. ( $5 \times 10^{-4}$  to  $5 \times 10^{-3}$  M) of 11 strong acids in AcOH containing 0.12% water were measured by use of indicators  $\alpha$ -naphtholbenzein (I) and o-nitroaniline.  $H_0 = -\log(BH^+)/[B] + pK_a$ , where  $(BH^+)$  and  $[B]$  are the concns. of the acidic and basic forms of an indicator, and  $pK_a$  is the thermodynamic dissociation constant for the conjugate acid of the indicator. The  $pK_a$  for I was evaluated as 0.53. The order of increasing acid strength at equal molarities is: HCl, methanesulfonic, sulfuric, carboxymethanesulfonic, chloromethanesulfonic, chlorocarboxymethanesulfonic, HBr, perchloric, methanedisulfonic, chloromethanedisulfonic, and methanetrissulfonic acids.  $H_0$  values for anhydrous solns. of 4 monobasic acids at  $5 \times 10^{-3}$  M were measured, and from the increased acidity found, equilibrium consts. for the reaction of the acids with water were calculated. H<sub>2</sub>SO<sub>4</sub> was found to be monobasic. Dissociation consts.,  $K_c$ , of HCl, HBr, HClO<sub>4</sub>, and H<sub>2</sub>SO<sub>4</sub> in AcOH (calculated from conductivity data of Kolthoff and Willman (C.A. 28, 3644.1)) are  $5.1 \times 10^{-10}$ ,  $1.9 \times 10^{-7}$ ,  $9 \times 10^{-7}$ , and  $7.4 \times 10^{-9}$ , resp. The fact that values of  $\Delta pK_c$  from conductivity and from  $H_0$  data are in reasonable agreement shows that equilibrium in AcOH involve, primarily, undissocd. species.

L23 ANSWER 24 OF 30 CAPLUS COPYRIGHT 2006 ACS on STN  
ACCESSION NUMBER: 1949:27346 CAPLUS  
DOCUMENT NUMBER: 43:27346  
ORIGINAL REFERENCE NO.: 43:5035h-1  
TITLE: Reaction of acetylene and acetic acid. Societe des usines chimiques Rhone-Poulenc  
DOCUMENT TYPE: Patent  
LANGUAGE: Unavailable  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

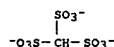
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
FR 867066		19410926	FR	19400224
IT 54322-33-7				
(catalyst of HgO, HgSO <sub>4</sub> and, in C <sub>2</sub> H <sub>2</sub> reaction with AcOH)				
RN 54322-33-7				
CAPLUS				
CN				
Methanetrissulfonic acid (7CI, 9CI) (CA INDEX NAME)				



AB With a mixture of sulfonic acids containing CH-(SO<sub>3</sub>H)<sub>3</sub> 36, HgSO<sub>4</sub> 21, and HgO 14 as catalyst, AcOH 5600 g. and C<sub>2</sub>H<sub>2</sub> give CH<sub>2</sub>CHOAc or MeCH(OAc)<sub>2</sub>. The sulfonic acid mixture is prepared by adding 63% H<sub>2</sub>SO<sub>4</sub> 1070 to Ac<sub>2</sub>O 400 g. slowly so that the temperature does not rise above 115°, letting stand 3 hrs. at 120°, adding glacial AcOH 500 g. with the temperature at 120° another 3 hrs., and then more glacial AcOH 3000 g., with stirring 0.5 hr. The mixture contains 15% CH (SO<sub>3</sub>H)<sub>3</sub>.

L23 ANSWER 23 OF 30 CAPLUS COPYRIGHT 2006 ACS on STN  
ACCESSION NUMBER: 1950:28491 CAPLUS  
DOCUMENT NUMBER: 44:28491  
ORIGINAL REFERENCE NO.: 44:5552b-d  
TITLE: Aluminum methionate  
INVENTOR(S): Christian, John E.; Jenkins, Glenn L.  
PATENT ASSIGNEE(S): Purdue Research Foundation  
DOCUMENT TYPE: Patent  
LANGUAGE: Unavailable  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

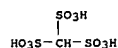
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2504107		19500418	US 1946-701091	19461004
IT 855840-41-4				
Methanetrissulfonic acid, aluminum salt (preparation of)				
RN 855840-41-4				
CAPLUS				
CN				
Methanetrissulfonic acid, aluminum salt (5CI) (CA INDEX NAME)				



#### ● Al<sup>3+</sup>

AB Certain Al alkyl sulfonates are effective as antiperspirants, e.g. Al methionate (I), Al ethanedisulfonate, Al methanetrissulfonate, Al methanesulfonate, Al sulfoacetate, Al o-sulfobenzoate. General requirements are: the Al ion or its equivalent; one or more sulfo groups; an alkyl group. The more sulfo groups, the greater is the astringency. I is prepared by adding a solution of Al<sub>2</sub>(SO<sub>4</sub>)<sub>3</sub> to a solution of Ca methionate in water, digesting the mixture for 10 min., and filtering it. The solution of I is concentrated, and EtOH is added until I crystallizes out. I is hygroscopic, soluble in water, does not crystallize out of astringent creams. The other Al salts are prepared by treating the respective Ba compds. with Al<sub>2</sub>(SO<sub>4</sub>)<sub>3</sub> solution. These antiperspirants are harmless to skin and fabrics.

L23 ANSWER 25 OF 30 CAPLUS COPYRIGHT 2006 ACS on STN  
ACCESSION NUMBER: 1947:11308 CAPLUS  
DOCUMENT NUMBER: 41:11308  
ORIGINAL REFERENCE NO.: 41:2303e-g  
TITLE: Diameter changes of gelatinized coacervate drops of the complex coacervate gelatin-gum arabic, resulting from a change in pH of, or from the addition of neutral salts to, the surrounding medium. I  
AUTHOR(S): de Jong, H. G. Bungenberg; Landsmeer, J. M. F.  
CORPORATE SOURCE: Univ., Leiden  
SOURCE: Recueil des Travaux Chimiques des Pays-Bas et de la Belgique (1946), 65, 606-13  
CODEN: RTCPB4; ISSN: 0370-7539  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
IT 55110-91-3, Methanetrissulfonic acid, tripotassium salt  
(effect on diameter changes of coacervate drops of gelatin-gum arabic)  
RN 55110-91-3 CAPLUS  
CN Methanetrissulfonic acid, tripotassium salt (3CI, 9CI) (CA INDEX NAME)

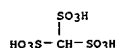


#### ● 3 K

AB Diameter changes of coacervate drops (100-200  $\mu$ ) reached equilibrium quickly (5-10 min.) in media of a given pH or salt concentration. The changes were followed microscopically at salt concns. low enough (10-40 milliequiv. per l.) to allow reversibility in the swelling and shrinking. The diameter is a min. at the pH (3.7) where the H<sub>2</sub>O content is a min. Reversible swelling due to addition of a salt (KCl, CaCl<sub>2</sub>, LaCl<sub>3</sub>, K<sub>2</sub>SO<sub>4</sub>, or K<sub>3</sub>CH(SO<sub>3</sub>)<sub>3</sub>) is least for the 1-1 valence type and increases as the salt deviates from this valence type (double valence rule).

L23 ANSWER 26 OF 30 CAPLUS COPYRIGHT 2006 ACS ON STN  
 ACCESSION NUMBER: 1944:16250 CAPLUS  
 DOCUMENT NUMBER: 38:16250  
 ORIGINAL REFERENCE NO.: 38:2347f-g  
 TITLE: Reaction of oleum with AcOH or Ac2O  
 INVENTOR(S): Cockerille, Frank O.  
 PATENT ASSIGNEE(S): E. I. du Pont de Nemours & Co.  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Unavailable  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

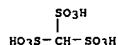
	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	US 2333701		19431109	US 1940-365947	19401116
IT	54322-33-7, Methanetrissulfonic acid (preparation of)				
RN	54322-33-7 CAPLUS				
CN	Methanetrissulfonic acid (7CI, 9CI) (CA INDEX NAME)				



AB Methanetrissulfonic acid is prepared by a process involving adding HOAc or Ac2O to oleum, in a proportion of 4 to 7 parts of oleum to each part of the HOAc or Ac2O, the temperature being allowed to rise gradually to 65-85° during the addition of 50-75%, and not above 90° during the addition of the remainder, of the Ac2O or HOAc, and completing the reaction by holding the mixture at 90-100°.

L23 ANSWER 27 OF 30 CAPLUS COPYRIGHT 2006 ACS ON STN (Continued)  
 (010):(111) = 54° 5'; (001):(111) = 57° 30'; (001):- (102) = 29° 25'; (010):(.hivin.110) = 43° 50'; plane of the optical axes (100); the sharp bisectrix is (010);  $\mu > \nu$ ; the crystals are optically negative. The normal Tl salt is anhyd. Normal Ba salt (9H2O); at 25°, 100 g. water dissolves 0.845 g. anhyd. salt; crystallographic properties: rhombic system; a:b:c = 0.834:1:0.564; observed forms (212), (010), (110), (111) and (120); angles:(010):(110) = 50° 11'; (010):(111) = 64° 57'; (010):(212) = 76° 47'; (010):(120) = 31° 30'; plane of the optical axes (010). Normal NH4 salt, anhyd.; crystallographic properties: rhombic system; a:b:c = 0.9573:1:1.7022; observed forms (001), (011), (101), (110) and (211); angles:(001):- (011) = 59° 34'; (100):(101) = 29° 21'; (100):(110) = 43° 44'; (100):(211) = 29° 16'. PCs with the free acid does not give the trisulfonyl chloride, SO2 being evolved; therefore, derivs. could not be prepd.

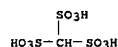
L23 ANSWER 27 OF 30 CAPLUS COPYRIGHT 2006 ACS ON STN  
 ACCESSION NUMBER: 1932:23284 CAPLUS  
 DOCUMENT NUMBER: 26:23284  
 ORIGINAL REFERENCE NO.: 26:2413g-i,2414a-d  
 TITLE: The chlorination of methanetrissulfonic acid  
 AUTHOR(S): Backer, H. J.  
 SOURCE: Recueil des Travaux Chimiques des Pays-Bas et de la Belgique (1932), 51, 374-80  
 CODEN: RTCPB4; ISSN: 0370-7539  
 DOCUMENT TYPE: Journal  
 LANGUAGE: Unavailable  
 IT 54322-33-7, Methanetrissulfonic acid (chlorination of)  
 RN 54322-33-7 CAPLUS  
 CN Methanetrissulfonic acid (7CI, 9CI) (CA INDEX NAME)



AB cf. C. A. 25, 75. The chlorination of CH(SO3H)3 may be carried out by heating 7.8 g. of the tri-K salt and 0.1 g. I in 60 cc. water containing 2 g.

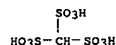
Cl in a sealed tube at 200° for 10 hrs. After evaporating the contents of the tube and recrystg. the residue 6 times from its weight of water, tri-K chloromethanetrissulfonate was obtained in a pure state in 70% yield; it does not contain H2O; at 25° 100 g. water dissolves 3.38 g.; crystallographic properties: monoclinic system; a:b:c = 0.8040:1:0.7659;  $\beta$  = 87° 52'; observed forms (.hivin.111), (010), (111), (101) and (011); angles: (010):(011) 52° 34'; (010):(111) = 61° 27'; (100):(.hivin.101) = 42° 36'; (100):(101) = 44° 33'; (010):(.hivin.111) = 60° 38'. For the preparation of the free acid and other salts the trisulfonyl salt, which crystallizes without H2O, was used. The free acid (4.5 H2O) m. 160-5° but 180-2° in the presence of P2O5; at 25°, 100 g. water dissolves 254.7 g. of the anhydrous acid. Normal Li salt (8 H2O): 100 g. water dissolves 109.9 g. of the anhydrous salt; crystalline properties: rhombic system; a:b:c = 0.933:1:0.708; observed forms (110), (011) and (010); angles: (110):(010) = 46° 59'; (1.hivin.11):(100) = 52° 43'; (010):(011) = 54° 50'; (110):(011) = 66° 51'. The normal Na salt does not contain H2O on crystallization from a saturated hot solution but 3 H2O on evaporating a solution at room temperature; at 25°, 100 g. water dissolves 21.8 g. of the trihydrate. Normal Rb salt (1H2O): 100 g. water dissolves at 25°, 3.34 g. of the anhydrous salt; crystalline properties: rhombic system; a:b:c = 0.9827:1:0.5437; observed forms (101), (010), (111), (221), (100), (041), (001) and (210), sometimes (110); angles: (001):(111) = 37° 48'; (100):(110) = 45° 30'; (001):(101) = 29° 1'; (001):- (221) = 57° 20'; (001):(041) = 65° 23'; (100):(210) = 26° 12'; (101):(111) = 25° 20'. The normal Cs salt (1 H2O) consists of rhombic plates; at 25°, 100 g. water dissolves 5.49 g. of the crystallized salt; crystallographic properties: rhombic system; a:b:c = 0.9646:1:1.0845; observed forms (100), (001), (010), (111), (102), (101), (210) and (112); angles:(100):(101) = 41° 39'; (100):(210) = 25° 45'; (100):(112) = 63° 47'; (100):(111) = 53° 0'.

L23 ANSWER 28 OF 30 CAPLUS COPYRIGHT 2006 ACS ON STN  
 ACCESSION NUMBER: 1932:8729 CAPLUS  
 DOCUMENT NUMBER: 26:8729  
 ORIGINAL REFERENCE NO.: 26:962g-i  
 TITLE: The salts of methanetrissulfonic acid  
 AUTHOR(S): Backer, H. J.; Terpstra, P.  
 SOURCE: Recueil des Travaux Chimiques des Pays-Bas et de la Belgique (1931), 50, 1069-77  
 CODEN: RTCPB4; ISSN: 0370-7539  
 DOCUMENT TYPE: Journal  
 LANGUAGE: Unavailable  
 IT 54322-33-7, Methanetrissulfonic acid (and salts)  
 RN 54322-33-7 CAPLUS  
 CN Methanetrissulfonic acid (7CI, 9CI) (CA INDEX NAME)



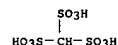
AB The normal K, Ag and Tl salts of methane-trissulfonic acid have been described (cf. Backer, C. A. 25, 915); the present paper deals with other salts, which were prepared in the usual way. Methanetrissulfonic acid contains 3H2O, m. 162-162.5°; 100 g. of water at 25° dissolves 221 g. of the anhydrous acid and 510 g. of the crystallized compound. Detailed crystallographic data are given for the normal NH4 salt (contains 0.5 H2O; crystals are of the monoclinic system), the normal Li salt (4 H2O; monoclinic system), normal Na salt (3 H2O; very thin monoclinic plates), normal Rb salt (1 H2O; rhombic system, bisphenoidal class), normal Cs salt (1 H2O; monoclinic system), normal Ag salt (1 H2O; triclinic system), normal Ca salt (12 H2O; rhombic system), normal Ba salt (9 H2O; monoclinic crystals), normal La salt (6 H2O; monoclinic crystals), and normal cinchonine salt (8 H2O; rhombic, pseudotetragonal crystals). The mono-K dibrucine salt was obtained from the tri-K salt and an equivalent amount of brucine acetate; it contains 9 H2O. The K and Rb salts are isomorphous and give mixed crystals. Sometimes small anhydrous triclinic crystals of the Cs salt were obtained and a triclinic dihydrate was prepared.

L23 ANSWER 29 OF 30 CAPLUS COPYRIGHT 2006 ACS ON STN  
ACCESSION NUMBER: 1931:8598 CAPLUS  
DOCUMENT NUMBER: 25:8598  
ORIGINAL REFERENCE NO.: 25:915a-1  
TITLE: Methanetrisulfonic acid  
AUTHOR(S): Backer, H. J.; Klaassens, K. H.  
SOURCE: Recueil des Travaux Chimiques des Pays-Bas et de la  
Belgique (1931), 49, 1107-17  
CODEN: RTCPB4; ISSN: 0370-7539  
DOCUMENT TYPE: Journal  
LANGUAGE: Unavailable  
IT 54322-33-7, Methanetrisulfonic acid  
(and salts)  
RN 54322-33-7 CAPLUS  
CN Methanetrisulfonic acid (7CI, 9CI) (CA INDEX NAME)



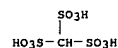
AB CH(SO<sub>3</sub>H)<sub>3</sub> has already been prepared: (1) by Theilkuhl (Ann. 147, 134 (1868)) on heating Ca Me sulfate with H<sub>2</sub>S<sub>2</sub>O<sub>7</sub>; (2) by Bagnall (J. Chemical Society 75, 278 (1899)) on sulfonating Ac derivs. of aromatic amines; (3) by oxidation of HSC(SO<sub>3</sub>H)<sub>3</sub> (Albrecht, Ann. 161, 139 (1872); cf. Backer, C. A. 24, 76); (4) by the action of K<sub>2</sub>SO<sub>3</sub> on O<sub>2</sub>NCH(SO<sub>3</sub>H)<sub>2</sub> (Rathke, Ann. 167, 219 (1873)), which is formed by the action of K<sub>2</sub>SO<sub>3</sub> of O<sub>2</sub>NCCl<sub>3</sub>; it is, however, recommended to isolate the O<sub>2</sub>NCH(SO<sub>3</sub>H)<sub>2</sub>, which is formed as an intermediate product; (5) on heating N<sub>2</sub>C(SO<sub>3</sub>H)<sub>2</sub> with acids, water or KHSO<sub>3</sub> (von Pechmann, Ber. 28, 2382 (1895); Pantl and Fisch, C. A. 24, 1841); (6) by sulfonation of CH<sub>2</sub>(SO<sub>3</sub>H)<sub>2</sub>. All these methods, except 1, are discussed in the present paper. Method 6: On heating CH<sub>2</sub>(SO<sub>3</sub>H)<sub>2</sub> with SO<sub>3</sub> (2.5 mols.) during 5 hrs. at 170°, CH(SO<sub>3</sub>H)<sub>3</sub> may be obtained as the K salt with 10% yield. Method 2: sulfonation of PhNHAc 0.5 mol. AcNHPh is introduced slowly into 500 g. fuming H<sub>2</sub>SO<sub>4</sub> containing 35% SO<sub>3</sub>, the mixture being heated 3 hrs. at 130° with mech. stirring; yield of the tri-K salt 57%; on carrying out the same reaction with succinamide, a small yield of the same compound was obtained. Method 3: 0.1 mol. HSC(SO<sub>3</sub>K)<sub>3</sub>, in 1 l. water is oxidized at room temperature by a current of Cl with the gradual addition of 80 g. KHSO<sub>3</sub>; yield 90%. Method 4: O<sub>2</sub>NCH(SO<sub>3</sub>H)<sub>2</sub> was prepared according to Rathke (loc. cit.) by adding 82 g. O<sub>2</sub>NCCl<sub>3</sub>, gradually to 450 g. K<sub>2</sub>SO<sub>3</sub> in 900 cc. water, heated to 75°, and keeping the temperature at 80°; yield 40% of the anhydrous di-K salt, which dissolves in water at 25° to the extent of 1.16%. The normal strychnine salt of O<sub>2</sub>NCH(SO<sub>3</sub>H)<sub>2</sub> crystallizes with 3.5 H<sub>2</sub>O, the free acid itself with 2 H<sub>2</sub>O while the normal Na and Tl salts crystallize without H<sub>2</sub>O; both the latter salts are easily soluble in water. On heating the K salt with K<sub>2</sub>SO<sub>3</sub> in a sealed tube at 140°, CH(SO<sub>3</sub>K)<sub>3</sub> is obtained in 67% yield. Method 5: N<sub>2</sub>C(SO<sub>3</sub>K)<sub>2</sub>, prepared according to von Pechmann (loc. cit.), may be converted into CH(SO<sub>3</sub>H)<sub>3</sub> by the action of KHSO<sub>3</sub> at 60° and finally on the water bath (yield 62%), decomposing the compound with water or introducing it into dilute

L23 ANSWER 30 OF 30 CAPLUS COPYRIGHT 2006 ACS ON STN  
ACCESSION NUMBER: 1930:16847 CAPLUS  
DOCUMENT NUMBER: 24:16847  
ORIGINAL REFERENCE NO.: 24:1841a-b  
TITLE: Methanetrisulfonic acid  
AUTHOR(S): Pantl, Paul; Fisch, Julius  
SOURCE: Journal fuer Praktische Chemie (Leipzig) (1930), 124, 159-62  
CODEN: JPCEAO; ISSN: 0021-8383  
DOCUMENT TYPE: Journal  
LANGUAGE: Unavailable  
IT 55110-91-3, Methanetrisulfonic acid, hydroxy-, tripotassium salt (preparation of)  
RN 55110-91-3 CAPLUS  
CN Methanetrisulfonic acid, tripotassium salt (3CI, 9CI) (CA INDEX NAME)



● 3 K

IT 54322-33-7, Methanetrisulfonic acid  
(salts)  
RN 54322-33-7 CAPLUS  
CN Methanetrisulfonic acid (7CI, 9CI) (CA INDEX NAME)



AB N<sub>2</sub>C(SO<sub>3</sub>K)<sub>2</sub> and KHSO<sub>3</sub> give CH(SO<sub>3</sub>K)<sub>3</sub> and not HOC(SO<sub>3</sub>K)<sub>3</sub> (cf. v. Pechmann, Ber. 28, 2374 (1898)). The K, Ba and Ag salts were prepared and analyzed.

L23 ANSWER 29 OF 30 CAPLUS COPYRIGHT 2006 ACS ON STN (Continued)  
HCl, the latter reaction giving a 40% yield. On introducing the diazo compd. into concd. HCl at 0°, ClCH(SO<sub>3</sub>H)<sub>2</sub> is obtained. The following salts of CH(SO<sub>3</sub>H)<sub>3</sub> and the acid itself were prepd. in the usual way: The free acid with 3.5 H<sub>2</sub>O, m. 156°; the tri-K salt, rhombic prisms with 1 H<sub>2</sub>O; 100g. of water dissolve at 25°, 1.202 g. of the anhyd. salt and 1.261 g. of the crystd. salt. Crystallographic properties (P. TERPSTRA): rhombic system, bisphenoidic class D<sub>2</sub>; a: b: c = 0.9977:1:1.3604. Forms: a = (100); b = (010); c = (001); p = (101); m = (110); o = (111); Q = (1.hivin.11); q = (011); s = (121); angles: a = m = 44° 56'; c:p = 52° 38'; a: " = 51° 28'; b:w = 51° 34'; c:q = 52° 36'; o: s = 19° 22'. The crystals obtained by evapn. at ordinary temp. have a larger dimension in the direction of the b-axis. The crystals show a marked piezoelectricity: the plane of the optical axes is (001); the a-axis is the sharp bisectrix; ρ<v. For Na light 2n 83° 1'; α = 1.513; β = 1.5253; γ = 1.5270; 2V = 51° 45'. The tri-Tl salt also contains 1H<sub>2</sub>O; crystallographic properties (P. TERPSTRA): rhombic system, bisphenoidic class; a: b: c = 0.9971:1:1.3009; forms: m = (110); p = (101); q = (011); s = (1.hivin.11); " = (111); the crystals possess either the form s or the form ", which have never been found to occur in the same crystal. Angles: m: m = 90° 10'; p:p = 105° 4'; q:q = 104° 54'; s:s = 123° 0'; p:s = 38° 20'; s:q = 38° 29'. The plane of the optical axes is (001); the sharp bisectrix (010). By means of a prism formed by (1.hivin.11) and (1.hivin.11) the refractive index β has been detd. to be 1.739, 1.743, 1.768 for λ = 578, 546, 436, resp. The crystals are piezoelectrical. The tri-Ag salt contains 1 H<sub>2</sub>O; the Ba salt, 9 H<sub>2</sub>O; the latter is difficultly sol. in water, only to the extent of 0.1%. On mixing without precautions the solns. of the K salt and BaCl<sub>2</sub>, a double salt of Ba and K is obtained, CHO<sub>9</sub>S<sub>3</sub>KBa<sub>3</sub>H<sub>2</sub>O, which, after several recrystns. from a large amount of water, gives the pure Ba salt. The Ca salt contains 12 H<sub>2</sub>O and the La salt 6 H<sub>2</sub>O (cf. Backer and Klaassens, C. A. 24, 4729).

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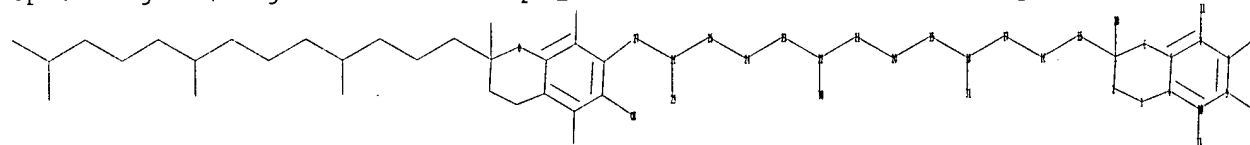
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chain nodes :

11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31

ring nodes :

1 2 3 4 5 6 7 8 9 10

chain bonds :

1-15 1-28 7-11 8-12 9-14 10-13 15-16 16-17 17-18 18-19 18-31 19-20

20-21 21-22 22-23 22-30 23-24 24-25 25-26 26-27 26-29

ring bonds :

1-6 1-2 2-3 3-4 4-5 4-10 5-6 5-7 7-8 8-9 9-10

exact/norm bonds :

1-6 1-2 2-3 3-4 5-6 9-14

exact bonds :

1-15 1-28 7-11 8-12 10-13 15-16 16-17 17-18 18-19 18-31 19-20 20-21  
21-22 22-23 22-30 23-24 24-25 25-26 26-27 26-29  
normalized bonds :  
4-5 4-10 5-7 7-8 8-9 9-10

Match level :

1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:Atom 8:Atom 9:Atom 10:Atom  
11:CLASS 12:CLASS 13:CLASS 14:CLASS 15:CLASS 16:CLASS 17:CLASS 18:CLASS  
19:CLASS 20:CLASS 21:CLASS 22:CLASS 23:CLASS 24:CLASS 25:CLASS 26:CLASS  
27:CLASS 28:CLASS 29:CLASS 30:CLASS 31:CLASS

L24 STRUCTURE UPLOADED

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L25 446 SEA SSS FUL L24

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L26 17222 L25

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0 ANSWERS

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BATCH \*\*COMPLETE\*\*

PROJECTED ITERATIONS: 6 TO 266

PROJECTED ANSWERS: 0 TO 0

L27 0 SEA SSS SAM L21

L28 0 L27

L29 0 L26 AND L28

=> s l21 and l19

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0 ANSWERS

SEARCH TIME: 00.00.01

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PROJECTED ITERATIONS: 6 TO 266

PROJECTED ANSWERS: 0 TO 0

L30 0 SEA SSS SAM L21

L31 0 L30

37 L19

L32 0 L31 AND L19

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FULL ESTIMATED COST

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1244.14

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